The Cavendish Lecture

BEING

REMARKS ON THE SURGERY OF THE LARGE INTESTINE.

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Mr. President and Gentlemen,—The surgery of the large intestine is chiefly concerned with three diseases—cancer, tuberculous tumours, and those simple inflammatory disorders which are grouped under the not very accurate or appropriate title, "diverticulitis." The merely technical aspects of this interesting subject have undergone notable improvements. Tumours of the large bowel can now be removed more widely, with greater safety, and with a higher degree of permanent success than would have been thought possible a few years ago. But being the possessor of a mind as well as a hand the surgeon is not satisfied with technical excellencies. His very proper desire is to discover those early symptoms by which the presence of disease can be discerned in a stage when the mechanical measures which he has at his command may have an assured prospect of success. It is therefore disappointing to acknowledge that in respect of the colon and its tumours progress in matters [illegible] terminal event, [illegible], that too often [illegible].

Diagnosis of Tumours of Large Intestine.

The symptoms which are aroused by a tumour in the gut depend upon the portion which is involved. The alimentary canal is developed from the fore-, mid-, and hind-guts. The fore-gut receives and prepares the food, the mid-gut digests and absorbs it, the hind-gut stores and expels it. The work of the mid-gut, which extends from the duodenum to the middle (approximately) of the transverse colon, consists in eating and drinking. That part of the mid-gut which becomes the small intestine takes up the solid food, that which becomes the large intestine takes up the fluid. Hunger is appeased by the small bowel, thirst by the large. The retention of water throughout the whole length of the small intestine is necessary to allow of the transit of the solid particles held in suspension, so that the valvulæ conniventes waved to and fro in the current may present first one side and then the other to the stream which feeds them. If fluid were absorbed in the stomach or jejunum the transit of the dried material through the lower coils of the ileum would be difficult and slow. Our whole intestinal system, indeed, would need reconstruction. The contents which reach the cæcum are then fluid and waste products. All the virtue has gone from the solid material because of the devouring properties of the small bowel. It is computed that only 10 per cent. of the fluid taken by the mouth has been absorbed before the cæcum is reached. The liquid remains, to be quickly absorbed by the cæcum, ascending and transverse colon. If a growth arises in the cæcum or ascending colon a little stenosis probably develops speedily. An exaggerated activity of the intestinal walls behind the growth is therefore directed against the fluid contents, which are driven more quickly along the bowel for discharge. It is, I believe, the rule that, in cases of growth in the colonic portion of the mid-gut, diarrhœa is the predominant form of intestinal irregularity, whereas if the growth has its place in the hind-gut constipation is the more marked. There are exceptions, of course, especially when the rectum is involved low down. But there are very few cases of growth on the right side in which constipation is pronounced; and there are still fewer on the left side with true diarrhœa the condition of which complaint is made.

It is rare for patients suffering from a growth in the large intestine to complain of pain; there is more usually a sense of discomfort, of turmoil, of erratic and uneasy movements, with griping, accompanied by the noise of gas and fluid rolling about within the bowel. The borborygmi in the late cases may be very loud, so that they may easily be heard many feet away from the patient. It is a remarkable feature in cases of carcinoma of the colon that the patient is often able to localise the seat of the obstruction. He will describe the accumulation of flatus at a certain point in the intestine where the difficulty seems to lie, and may say also that a trickle of escaping fluid and gas is felt to be followed at once by relief. One is perhaps at first inclined to doubt the patient's power of localising his trouble, but a long acquaintance with cases of this kind convinces me that it is with remarkable frequency that the patient's predictions as to the place of obstruction are verified by the operation.

Alterations in the fæces are usual in all cases. The changes in their consistency have already been referred to, as also the variations in their frequency, according to the [illegible] Blood is often present, probably is invariably found if repeated chemical tests for it are used. It is often visible to the naked eye as clots, or strings or patches adherent to the fæces or floating in the fluid discharges. The recognition of blood is an important aid in diagnosis, for in the condition known as "diverticulitis" hæmorrhage, even in the most trivial quantities, is very rare. A free passage of blood had been noticed as the inaugural symptom in three cases in which I resected a growth in the pelvic colon; such cases are analogous to those in which a profuse hæmatemesis is the first declaration made by a gastric carcinoma.

In cases of carcinomatous growth in the ascending colon, and more rarely when the growth invades the cæcum or the first part of the transverse colon, the presence of anæmia may be observed. The anæmia is stealthy in onset, steady in progression, and may often be very pronounced before any other symptoms have attracted attention. In several instances I have known the case to be regarded as one of idiopathic anæmia until a tendency to looseness in the action of the bowels called particular attention to the abdomen. An examination then revealed a tumour lying in front of or below the right kidney. One patient upon whom I operated had been under very skilled care for nine months for "pernicious anæmia." His bloodless condition was extreme, and before I could attempt any operation upon him I was compelled to perform direct transfusion of blood. The radial artery of his elder son was attached to his median basilic vein and blood allowed to flow for 35 minutes, when I was at once able to proceed to the performance of a short-circuiting operation as a prelude to a later excision of the growth. So far as the large intestine is concerned this pronounced anæmia is not to be noticed when other parts than the ascending colon are attacked. I have seen a similar condition in two cases of growth in the ileum, and in one case of growth high in the jejunum; these conditions of cancer of the small intestine, however, are rare. The lesson to be learnt is that in all cases of unexplained anæmia a careful examination of the abdomen is necessary to detect or to negative the existence of a growth in these parts.

Among the methods of examination which lend accuracy to the diagnosis in cases of growth in the colon is that which is conducted by means of X rays after the administration of a bismuth meal or a bismuth enema. If there is any degree of obstruction the accumulation of the metal behind the stricture may be seen as a very black and often sharply delimited shadow, with a rounded end. After the lapse of time thin pellets of bismuth escaping through the stricture may cause small spots or black shadows to be seen; their appearance contrasts strongly with the massive dark accumulation heaped up on the proximal side of the growth. If the growth is in the cæcum or the lower part of the ascending colon a fair degree of narrowing may be present without any retardation of the bismuth being seen; this is the case even when at the operation a moderate degree of dilatation and hypertrophy is found in the cæcum and small intestine.

In many cases, especially when the growth lies on the left side of the abdomen, the injection of a bismuth mixture into the rectum may give very accurate information as to the site of, and the degree of constriction caused by, a new growth. It is necessary that the emulsion should be thick and injected slowly, for the ordinary saline enema, as we know, passes so rapidly through the large intestine that it may all escape from a typhlotomy opening within a minute or two of its introduction into the rectum. If the bismuth meets with an obstruction in its ascent of the colon, the shadow shows how completely its passage may be arrested.

In the later stages the presence of a tumour together with the plain evidences of a grossly thickened and distended intestine may be discovered. Malignant tumours of the large intestine are not usually of great size; but the heaping up of a hard fæcal material behind the narrowest part, as well as the very thickened condition of the bowel wall, together make a mass which may be recognised on careful palpation. If in such a case the whole abdomen be gently massaged for a few minutes, and the hand then allowed to lie softly upon the abdomen, a great turmoil and much vigour of contraction of the bowel may be felt. Hard coils of greatly agitated intestines are felt to form under the fingers, and then, with a loud gush and gurgle, quietly to disappear. The cæcum especially undergoes great distension, no matter where the growth may lie. Even with obstruction in the sigmoid flexure the cæcum may be stretched to the size of a small ovarian cyst. Owing to incompetence of the ileo-cæcal valve, so considerable a regurgitation of contents may occur, or so high a degree of retardation of their onward flow, as to cause a very perceptible coiling of the over-full ileum. The muscular movements seen in the large and small intestines in cases of stenosis are of course quite different in character. In the small intestine peristaltic movements are plainly witnessed; in the large intestine distension, with marked hardening or stiffening of the wall, is seen and felt.

Carcinoma may invade any part of the large intestine. With the exception of the rectum, the seat of a malignant growth is supposed to be most often at the flexures—the hepatic, the splenic, and that flexure which marks the change from the descending colon to the sigmoid flexure. I doubt the accuracy of the statement. It is in my view quite rare exact turn in the bowel to be involved. The growth ally one, two, or three inches from the flexures. have never seen a growth developing exactly at , and but rarely at the splenic flexure.

"DIVERTICULITIS."

Attention has recently been concentrated upon diseases of the large intestine other than cancer. The mimicries of malignant disease in the colon are remarkable for their accuracy, as I pointed out in a paper in 1906.[1] They are remarkable also for their frequency, a fact which I did not then appreciate. Of the conditions which imitate malignant disease very closely the most interesting is that now known as diverticulitis ("sacculitis" would no doubt be an apter term). When in 1906 I operated for Dr. R. D. Helm, of Carlisle, upon the first case recognised as chronic diverticulitis of the sigmoid flexure in this country, I could not realise that what seemed an exceedingly rare condition was in reality by no means uncommon. The work of Dr. W. J. Mayo and his colleagues in America and of Dr. W. H. Maxwell Telling in England have, however, made it quite certain that the formation of false diverticula in the colon, to a degree sufficient to cause definite symptoms, is by no means rare. Dr. Telling has now collected more than 100 specimens of the various types which the condition may assume, and I have myself operated upon 14 patients in the acute or chronic stage of their disorder in the colon.

False diverticula are found in all parts of the large intestine, from the appendix to the rectum. In the appendix they are frequently present, but are commonly overlooked. I have seen at least 50 very good examples. In the ascending and transverse colons they are rare; the sigmoid flexure is the part most often attacked; in the rectum they are seen with a frequency that is not yet adequately realised, I believe, by any of us. The diverticula are hernial protrusions of the mucosa through gaps in the muscular coat of the bowel, at points which are weakened, probably by the passage of a vessel. As a result of an increased intestinal pressure, which is itself due to constipation, the mucosa is pressed outwards, discovers the weak points in the mural defence, and escapes through them. In a short length of the bowel, say 4 or 6 inches, a great many of these protrusions may be found. As soon as the serosa is reached protective thickenings and some adhesions are formed, until at last the part of the gut involved becomes hard and thickened, and resembles with great precision a carcinomatous tumour in the intestine. Within the little saccules which are formed foreign bodies lodge—hard, stony, gritty concretions, of the kind so commonly seen in the appendix. Owing to these, and to the obstructions and infections for which they are further responsible, secondary changes occur. These have been very fully investigated and described by Dr. Telling. They are chiefly of interest to the surgeon in the following circumstances: (1) When inflammation and perforation result in a localised abscess ("left-sided appendicitis") or in a general peritonitis; (2) when chronic inflammatory changes cause a close mimicry of carcinoma; (3) when fistulæ develop, external or internal; external when an abscess discharges on to the abdominal wall or on to the back, internal when a communication is formed between the colon and the small intestine or the bladder, or both; (4) when carcinoma develops; (5) when, the rectum being the part affected, many ischio-rectal abscesses form, and rectal fistulæ result.

Of all these types I have had personal experience. Many surgeons have now recorded cases of "left-sided appendicitis" in which recurrent attacks of pain at a point exactly symmetrical with McBurney's have been due to diverticula in the sigmoid flexure. Had the pain and the local signs been right-sided the clinical history would have been considered typical of appendicitis.

Of the second type I have had a good deal of experience. I am disposed to doubt whether we shall ever be able to distinguish the real from the feigned carcinoma in the colon by a scrutiny of the history alone. The symptoms in their character, progress, and duration seem precisely similar in the two diseases, with the possible exception of hæmorrhage I believe that bleeding rarely, perhaps never, occurs in quantity from a non-malignant condition. When false diverticula are formed the ulcerating surface, if there be any —which is unusual—is small and hidden, and hardly likely to be the source of any appreciable quantity of blood. It is, indeed, only after the removal of the mass that its true nature is laid bare. A further proof of this similarity is to be found in the fact that an examination of the specimens of "cancer" on the shelves of many museums has disclosed the benign nature of the disease. The symptoms during life, the mode of death, and the appearance of the tumour removed alike lead to the belief that a growth is malignant which on section is proved to be simple.

In the case of those patients who for months or years pass flatus or fæces through the urethra it is very probable that a fistula exists between the pelvic colon and the bladder. As I pointed out in 1906, such a fistula is almost certainly due to simple rather than malignant causes. This statement was subject at the time to close criticism, but Dr. Telling and many other writers have since confirmed it. In such cases a diverticulum has often made its way directly through the coats of the bladder, or has caused the formation of a thick-walled abscess, which has itself burst into the bladder cavity, or into the bladder as well as on to the surface of the abdomen, resulting in an opening which may discharge both urine and fæces.

The development of cancer in the depths of a diverticulum as a result of protracted irritation has been shown by Mayo to be more frequent than was previously supposed. This holds true not only of the pelvic colon, indeed of all parts of the colon, but of the rectum also.

Lastly, it is interesting to note that in one case of multiple and inveterate fistulæ, opening in all parts of the perineum and ischio-rectal fossæ, I discovered the cause to be a diverticulitis of the rectum. I excised the rectum and found a condition precisely similar to that with which we are now so familiar in the sigmoid flexure. It may be, as C. H. Mayo has suggested, that many of the most rebellious forms of rectal fistulæ own this origin.

THE OPERATIVE TREATMENT OF MALIGNANT GROWTHS OF THE COLON.

If a malignant growth of the large intestine be removable the scope of the operation to be practised will depend upon a consideration of several factors. The chief of these are:—

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[1] Transactions of the Clinical Society, vol. xl., 1906.

1) The pathological anatomy of growths in this portion of he gut; (2) the vascular distribution in the bowel; and 3) the lymphatic distribution.

1. *Pathological Anatomy.*

The pathological anatomy of growths in the colon has been laborately studied by Okinczyc, under the auspices, and rith the encouragement, of his master Hartmann. The work f these two authors gives the most excellent account yet ublished of the surgery of the intestine.[2] It is now known hat cancer of the large intestine is to be considered among he least virulent of malignant growths, for the development of the tumour is usually very slow, the invasion of [illegible]

o all of them may occur, for a growth may be rapid or a econdary invasion of the liver may be discovered while yet he primary growth is small and easily amenable to removal. Within the last 12 months I have operated upon three cases n which the secondary deposits in the liver were large, while he ring-like primary stricture of the sigmoid flexure was mall and to all appearances had caused no involvement of he immediate glands. In these cases, no doubt, the extension of the disease had occurred along the radicles of the portal vein, either by a direct invasion and thrombosis of a sigmoid vein (of which condition I possess two specimens) or by a ymphatic vessel communicating directly with a vein in the nanner which Leaf has demonstrated.[3] Mr. H. S. Clogg[4] points out, in a paper to which subsequent references will frequently be made, that "cancer of the colon is in many cases a local disease, and that secondary visceral deposits are not the great barrier to any radical operation." In 41 cases of cancer of the colon causing death there were only six in which visceral deposits could be found. Haussmann[5] gave the following table showing the results of 112 necropsies on cases of carcinoma of the colon:—

In 21 cases the disease had become generalised.
36 " [illegible]
36 " [illegible]
20 " [illegible] any doubt.

It is rare to find in cases of carcinoma of the colon that any large extent of the bowel is involved. The growth appears to be small and strictly, even abruptly, limited. But Sampson Handley[6] has offered some evidence to show that permeation of the lymphatics occurs wide of the disease; in one case of early cancer of the rectum, cells, apparently carcinomatous, were found at the extremity of the specimen removed, about 6 inches above the growth. Adhesions of the growth to the posterior abdominal wall or to other parts of the intestinal canal are sometimes encountered, and may, though rarely, prohibit any attempt at removal. I have twice been prevented from [illegible] colon by reason of deep [illegible] ominal wall. It is, however, [illegible] and splenic flexures that the parietal attachments of the growth are closest. In the case of the sigmoid flexure it is not very uncommon to find the small intestine so adherent as to make it necessary to remove a segment of this also. In one case I found the transverse colon adherent, and I was accordingly compelled to remove the bowel from the hepatic flexure to the lowest part of the sigmoid. I turned the hepatic flexure downwards and performed a side-to-side anastomosis with the sigmoid flexure with a perfectly satisfactory result.

We are, I think, entitled to believe that a carcinomatous growth of the colon by reason of its small size, its (apparently) abrupt delimitations, its lengthy restriction to the intestinal wall, the tardy appearance of metastatic deposits, and the paucity of the lymph-glandular supply should prove amenable to successful attack by the surgeon. It would appear to be true to say that if cancer is to develop in the body there are few places it could select with so happy a chance for the patient of ultimate and complete relief as the large intestine.

2. *Vascular Distribution.*

It is important to know the vascular distribution in the colon, for it is alongside the arteries that the lymph currents flow and the the lymph glands chiefly lie. The large intestine is supplied by branches of the superior mesenteric artery and by the inferior mesenteric artery. The ileo-colic artery, which appears to continue in the direct line of the main trunk of the superior mesenteric artery, supplies the last few inches (about 6) of the ileum, the cæcum, and a part of the ascending colon. It takes origin at or near the level of the third part of the duodenum, and descends, inclining to the right, to reach the ileo-colic angle. From its right side as it descends the right colic artery is, as a rule, given off, though this vessel may arise directly from the superior mesenteric trunk. As the artery approaches the ileo-colic angle it divides. The mode of its division varies, but, as a rule, the artery to the appendix is first detached and the remaining trunk divides into anterior and posterior ileo-colic arteries; the anterior ileo-colic gives off a branch to the ileum, the posterior a branch to the cæcum.

The middle colic arises near the lower border of the pancreas and directs its course towards the right in the layers of the transverse mesocolon, where it divides into branches, each of which again divides, to form a series of arches joining on the mesial side of the ascending colon with the right colic, and towards the splenic end of the transverse colon terminating in an anastomosis ("anastomosis magna" of Riolan) with the ascending branch of the left colic artery. Not infrequently an accessory middle colic artery (Waldeyer) is given off as the first branch of the superior mesenteric artery to run direct towards the middle of the transverse colon.

The inferior mesenteric artery springs from the front of the aorta about the level of second and third lumbar vertebræ, slightly below the lower border of the duodenum; it is directed to the left and then downwards and gives off the left colic artery at the level of the division of the aorta. The left colic is a short, thick vessel which soon divides into two branches, an ascending, which mounts towards the left end of the transverse mesocolon where it anastomoses on the one side with the middle colic, as already described, and on the other [illegible] ranch, which, for its part, joir [illegible] artery in the usual arching a [illegible] arteries, one to four in number, arise directly from the inferior mesenteric artery, and radiating outwards and downwards in the mesosigmoid [illegible] nding branch; those [illegible] a series of arches, [illegible] are given off, sometimes to form secondary arches, sometimes to run direct to the intestinal wall. The anastomoses of the branches of the left colic [illegible] of a sing [illegible] from the [illegible] flexure. Here, however, it stops, for the superior hæmorrhoidal artery, which is the continuation of the inferior mesenteric trunk after the sigmoid arteries have left, does not divide into two arch-forming branches, but runs directly to the intestinal wall. The great importance of this fact has been demonstrated by Sudeck[7] and by Manasse,[8] from whose articles many of the foregoing details have been taken.[9] A reference to the figures given by these authors will show that if the lo[illegible] hæmorrhoidal artery [illegible] through the marginal [illegible] one may follow in the p[illegible] vessels. If, however, a ligature be applied to the trunk of the inferior mesenteric artery anywhere above the margin of the last sigmoid artery this vessel will be able to convey blood arriving in the marginal artery into the superior hæmorrhoidal trunk. The point of junction between the superior hæmorrhoidal artery and the lowest sigmoid artery is therefore called by Sudeck the "critical point." Ligature of the superior hæmorrhoidal artery and the lowest sigmoid artery below the critical point would appear inevitably to result in gangrene of the portion of the rectum supplied by them. There is, however, a far more valuable mode of investigation, which can be conducted by the surgeon while he is at work upon a case. My own view is that, however vessels are ligatured and whatever sacrifice of mesentery may be thought necessary, it is almost impossible to deprive the cut ends of the colon, when resection is being done, of an adequate blood-supply. Mortification due to anæmia is a myth. The marginal artery affords an ample supply of blood to all parts.

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[2] Travaux de Chirurgie, troisième série, Chirurgie de l'Intestin, Paris, 1907 [illegible]

The importance of this marginal artery in so far as the procedure of intestinal resection is concerned cannot be overestimated. Its importance has received especial emphasis in an excellent paper by Archibald of Montreal,[10] who demonstrates from post-mortem investigation and from experiments upon animals that the supply of blood passing along this trunk from the anastomosis with the middle colic artery is ample to maintain the vitality of the whole of the descending colon and the sigmoid flexure after the inferior mesenteric artery has been ligatured at its origin.[11]

3. *The Lymphatic Distribution.*

A knowledge of the number, course, and termination of the lymphatic vessels and of the distribution of the lymphatic glands is essential to all sound surgery of malignant disease. The surgery of carcinoma may sometimes be the surgical anatomy of the lymphatic system. If a growth affects any organ it is necessary to know the boundaries of the lymphatic area of that part; to know, that is, the origin, the course, and the destiny of all the lymph-vessels which drain the part that is affected.

During the last few years, as a result of the discovery of a method of injecting the lymph-vessels by Gerota, a great deal of investigation has been carried out by many workers, chief among whom in this connexion are Clado,[12] Polya and von Navratil,[13] Cunéo,[14] and Jamieson and Dobson.[15]

All, or almost all, of the investigations by these several observers were carried out upon the fœtus. In the fœtus and [illegible] child the lymph supply is free, and the number of [illegible] appears to be relatively smaller than in the adult. [illegible] advances changes everywhere take place in the lymphatic system, as C. H. Mayo and Polya and von Navratil have shown, and probably these changes are, to say the least, as considerable in the large intestine as in any part of the body. They consist in the obliteration of vessels by quiescent inflammatory processes, or by a simple process of involution, and by the interruption of the long vessels of the fœtus by the development of a gland or glands in their path. Moreover, we learn nothing from all these observations of the one supremely important thing in connexion with the spread of carcinoma—that is, the change in the direction of the flow of the lymph when one channel becomes blocked. So long as all channels remain open the lymph flow seems destined always to take a definite direction, but in malignant disease cancer cells are carried away in the lymph stream, and may soon form an embolus in any vessel within which they lie. That path is then closed, but the flow from the growth continues. As to the direction it may then take we are given no evidence.

All these various points make it certain that, great though our interest in the lymphatic system of the fœtus may be, we must not let our surgical procedures be too strictly dependent upon a knowledge of it. The plan of the lymphatic areas of the fœtus does not show us the direction taken, the vessels traversed and the glands involved, when cancer attacks any part and cancer cells are set free, but it indicates rather the very worst that could conceivably happen if the entire lymph system had remained unaltered from birth and if every channel remained patent. One very important result, as it appears to me, has come from the exaggerated importance attached to this recent work upon the lymphatic system. The best energies of the surgeon have been deflected from his main duty, the free removal of the growth, to what is after all of secondary value, extirpation of the lymphatic area. The most perfect section of the lymph territory, its vessels and its glands, desirable when possible, but the removal of the grow itself, often very perfunctorily performed, is the supre essential. The method of inquiry which would give the m helpful results would seem to be the investigation of bodies of patients who have died from malignant disea and the examination of specimens removed by operatio The latter method cannot, of course, be so satisfactory, the former, for even should the patient be completely permanently relieved of the disease there is no proof every cancer cell or every gland involved has been tak away.

In the case of the colon a most excellent beginning been made in this inquiry. Mr. H. S. Clogg reports in most valuable paper[16] the result of an examination of cases of cancer of the large intestine; he indicates glands affected, and gives an outline of the various operat procedures necessary in the different parts of the colon. divides the colon for purposes of description into its sever arterial segments. Also, the workers I have already nam agree in placing the lymphatic glands along the lines of larger arteries.

1. *The glands along the ileo-colic artery.*—Along the wh length of the ileo-colic artery some lymphatic glands Though they form an almost continuous chain, they roughly divided by Jamieson and Dobson into a lower an upper group, the former lying around the point of divis of the artery, the latter on and below the duodenum. vessels from the appendix consist of three sets. drawing from all except the root, ascends between the lay of the meso-appendix with the branches of the appendic artery to the glands of the lower ileo-colic group, a vessels ascending to the upper group. Those from the ro of the appendix are anterior and posterior; the anteri passing upwards escape past the anterior ileo-colic glands reach the lower main ileo-colic group—a vessel or vesse may pass these also to reach the upper group; the posteri vessels end in the posterior ileo-colic group.

The vessels from the point of the cæcum run with terminate in the same glands as, those of the [illegible] root.

The point of greatest importance in the lymphatic arrange ment of the cæcum and appendix is that, as Polya and vo Navratil first showed, vessels may pass from their origi directly to the upper group of the main ileo-colic chain. Th importance of this observation is, of course, this, that it seem to indicate that in any "radical" operation for the remova of carcinoma of the cæcum or appendix the highest gland along the ileo-colic artery must be included as well as th lower group, and those subsidiary groups which lie along th branches given off to right and left at the termination of th artery. Clogg in his paper reports on the examination of cases—14 post-mortem specimens and 2 specimens obtaine by operation. In only three-fourths of the cases were th enlarged glands infected. These were found in [illegible] —(1) in the ileo-colic angle generally close to t [illegible] but occasionally extending a little distance [illegible]wards,

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[illegible], vol. i, p. 573.
[illegible]tomie, Paris, 1903, [illegible]91.

[16] THE LANCET, 1908, vol. ii., p. 1007.

DESCRIPTIONS OF ILLUSTRATIONS.

FIG. 1.—Annular stricture caused by diverticulitis. A glass rod is se in one diverticulum. (Dr. Maxwell Telling's collection.)

FIG. 2.—Diverticulitis of sigmoid. A diverticulum has perforated, a has caused an abscess which lies between the bowel and the bladde The abscess, seen in dark shadow, has perforated into the bladder. Th internal orifice of the urethra is seen at the upper part of t figure. (Dr. Maxwell Telling's collection.)

FIG. 3.—Multiple diverticula; dissected specimen. The pouch which are formed by the diverticula are well seen. (Dr. [illegible] Telling's collection.)

FIG. 4.—Carcinoma of transverse colon, gastro colic fistula. The tran verse colon and a part of the stomach were successfully removed. rod lies in the track of the fistula.

FIG. 5.—Part of the ileum, the ascending and a portion of t transverse colon removed for [illegible] in t ascending colon and one in th [illegible]althy p

FIG. 1.

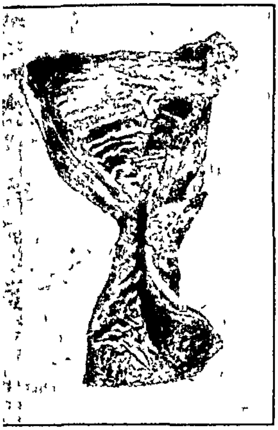


FIG. 2.

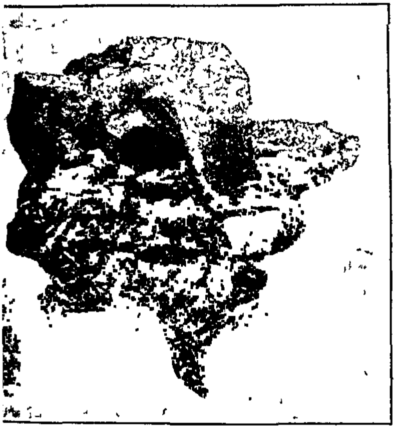


FIG 3.

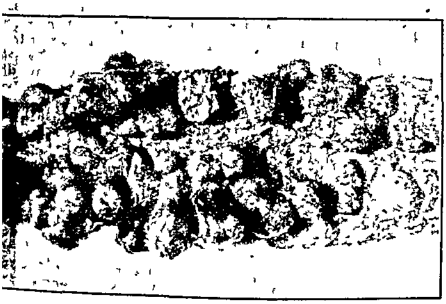


FIG. 4.

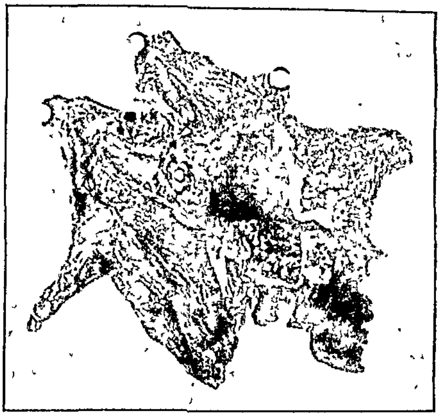


FIG. 5.

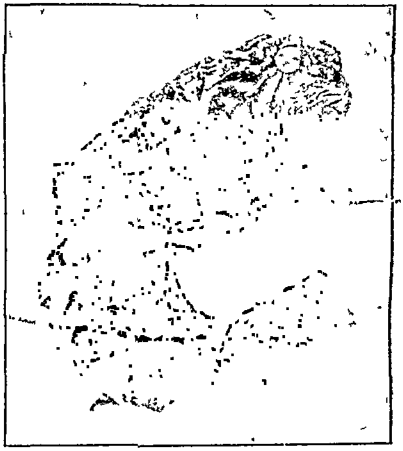
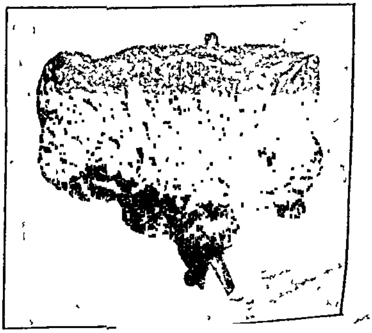


FIG 6.



three only as high as the origin of the right colic artery; (2) continuous with these were glands along the inner side of this ascending colon; (3) continuous with (1) were a few glands on the upper border of the ileum; and (4) a few glands in two cases "behind the growth." In one only were there glands around the head of the pancreas.

The operation intended to remove the lymphatic area attached to a growth of the cæcum and ascending colon must therefore include the last six inches of the ileum, the cæcum, the ascending colon, and about one-third of the transverse colon. This is the operation first described by Friedrich, and the one which in recent years I have always adopted.

2. *The lymphatic system in connexion with the middle colic artery* extends from the hepatic almost to the splenic flexure and embraces therefore a small portion of the ascending colon, the hepatic flexure, and about two-thirds of the transverse colon. Glands lie along the margin of the intestine between it and the series of vascular arches from which the straight vessels to the bowel are derived. Groups lie also along the main trunk of the vessel, especially at its bifurcation and its point of origin. This last group which lies on the vessel as it enters the transverse mesocolon received, in the fœtuses examined by Jamieson and Dobson, vessels "from the intestine itself" 5 times in 14 specimens. In the transverse colon, however, all the lymphatic vessels are interrupted by glands lying close to the gut; none escape to enter the main group on the origin of the artery.

The number of specimens examined by Mr. Clogg was too small to be more than suggestive of the route followed in the lymphatic invasion by cancer cells. It would appear that in the case of a growth in the hepatic flexure the glands not only in the immediate vicinity of the tumour are involved, but also those which lie along the undivided trunk of the middle colic artery. This vessel, therefore, must be tied close to its origin, which will involve a removal of about one-half of the transverse colon, the hepatic flexure, and a part of the ascending colon; but for ease of subsequent anastomosis it is better to tie also the ileo-colic and the right colic arteries, as in cancer of the cæcum, so that the ileum may be readily brought over to the transverse colon. The operation of Friedrich, that is to say, is performed with the addition of the ligature of the main trunk, [illegible] d of a branch, of the middle colic, and a rather [illegible] piece of the transverse colon is excised. If the growth [illegible] transverse colon it is only necessary, in accord with [illegible] that the lymph channels are almost at once arrested [illegible] ever pass direct to the main group, to excise widely, three inches approximately on each side of the growth, and to take away the attached portion of the mesocolon with its contained glands. The vascular supply on each side of the line of section is well secured and an easy end-to-end or side-to-side anastomosis can be performed.

3. *The lymphatic system in connexion with the inferior mesenteric artery* extends from the left end of the transverse colon to the rectum.

(*a*) The splenic flexure, supplied by the left colic artery, is drained by vessels which speedily encounter lymphatic glands. Jamieson and Dobson have "never seen a vessel passing directly to the main group of glands lying on the left colic artery," but they draw attention to a vessel which may "sometimes be seen running directly to the splenic glands."

Mr. Clogg examined the glands post mortem in 6 cases of cancer of the splenic flexure. "In 5 cases glands were enlarged in the vicinity of the primary growth, in the angle of the flexure or a little posterior to it in relation to the spleen or to the inner side of the descending colon. In 3, glands were also present in the mesocolon near to the lower border of the proximal transverse colon."

An operation destined to remove the whole lymphatic area attached to the splenic flexure would therefore appear to be impracticable, in view of the possible engagement in it of glands in the hilum of the spleen, unless the spleen itself were excised. But probably the indications are sufficiently met by a removal of a part, about one-third, of the transverse colon, the flexure itself, and one-half or rather more of the descending colon. Owing to the mobility of the transverse colon an end-to-end or side-to-side anastomosis is, I have found, always quite easy.

(*b*) The descending colon is drained by vessels which end in the group of glands lying to the inner side of the gut, and along the trunk of the left colic artery and its two branches. In the fœtus vessels also go, according to Jamieson Dobson, towards the hilum of the spleen.

(*c*) The sigmoid flexure and the rectum are [illegible] vessels which are tributaries to glands of the [illegible] mesenteric chain. Along the whole length of this glands are found in some cases, but not above the origin the left colic artery in all.

Clogg records 18 cases in which post-mortem in [illegible] was made of the glands in cases of growths in the [illegible] In 17 of the 18 cases enlarged glands were [illegible] "In every instance they were found in close proximity the primary growth. In 6, glands were found at distance from the primary growth near to or at the base the mesentery." The extent of the glandular [illegible] varied in these 6 cases; in 3 the highest gland was below the origin of the first sigmoid artery, in 3, were higher up on the main trunk of the inferior artery. In only two-thirds of the cases were cancer found in the glands. Clogg points out that cancer in region remains for long a local disease, that all glands to be enlarged are not necessarily cancerons, and that in single instance was glandular involvement only a barrier radical operation.

An operation to remove the whole lymphatic area [illegible] in a growth in or near the middle of the sigmoid flexure would involve the ligature of the inferior mesenteric arte below the level of the left colic artery (or if glands are f above this the artery may be ligatured at its origin from t aorta without fear of gangrene; that at least has been m frequent experience) and the division of the bowel above the junction of the descending and iliac colons, and belo at the lower end of the sigmoid flexure. If the grow should be in the lower part of the sigmoid flexure or in the upper part of the rectum the upper part of the sigmoid bowel may be left, the remainder of the sigmoid with the upper part of the rectum being removed with the mesentery attached to it, after the ligation of the inferior mesenteric artery below the origin of its left colic branch.

It may be urged against the operations thus briefly outlined that they are needlessly extensive, that less heroic measures have in the past given no little assurance of freedom from recurrence, and that the gain to be expected from a so much wider removal with high ligature of the arteries is not commensurate with the extra risks that are run. I have had a fairly considerable experience both of the older restricted methods and of the newer, more ample procedures, and I have not the smallest hesitation in saying that the latter are easier to perform, more quickly done, and that subsequent anastomoses, if they are to be attempted, are more easily secured, for in order to make feasible this wide removal of the possibly infected bowel and the lymphatic area attached to it, it is necessary to strip the gut freely from its attachments. In a former paper I have emphasised the value of free mobilisation of the colon in all cases needing resection, and have spoken of the ease with which displacement of th bowel may then be made. It is astonishing how much be done by these manœuvres; in one recent case I was without real difficulty to attach the bowel about 2 in below the splenic flexure to the rectum. The sim [illegible] conferred upon the operation by this preliminary li [illegible] of the attachment is the keynote of the whole procedure resection of any portion of the colon. It will be f [illegible] that both the ascending and the descending colon are loosely attached to the posterior abdominal wall. [illegible] connexions with it are due to the process of "physic [illegible] fusion" described by Toldt; to dissociate the adherent intestine from its attachment and thus to *reproduce the fœtal condition* is simple. The ascending colon and the descending colon, after incising the serosa on [illegible] outer sides, may be stripped quite up to the middle line they remain attached then simply by a mesenteric [illegible] which contains the vessels running to supply them; being freed in this manner they may easily be displaced brought to lie loosely in new positions, and so an anastomosis which in ordinary conditions would be difficult and subject at its completion to serious tension may now be made great ease, either by the end-to-end or by the side-to [illegible] applications. The principle of mobilisation, followed [illegible] transplantation or displacement, to which I called

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[17] Surgery, Gynæcology, and Obstetrics, 1908, vol. i., p. 463.

in a paper referred to above, was soon afterwards rediscovered and elaborated in so far as it applies to the sigmoid olon by Cavaillor and Chalier.[18] to the operation upon the right roughly it results in the colon having as great free a of movement as the small intestine.

The choice between the two methods of anastomosis—side-to-side or end-to-end—has exercised the minds of surgeons for some years. There are advantages in both. If the peritoneal investments are complete in both ends to be united, then end-to-end anastomosis seems to me an excellent method. It is, however, far more difficult to do with accuracy, neatness, and precision; if done in a slipshod manner disaster is bound to follow, leakage will occur from the suture line, and a general peritoneal infection or a localised abscess will be the result. If the serous covering is incomplete in one or other segment of the bowel, then I think it more prudent to close the two cut-ends and to approximate their serous surfaces in a side-to-side anastomosis, which should always be of ample size. Healing in such an attachment occurs readily, and the union is sound and firm within a few hours. It has been supposed, and the supposition receives undoubted support from experimental observation, that an end-to-end anastomosis allows a more easy onward progression of the intestinal contents. It may be so, but I have never seen any difficulty arise in my own cases when the anastomosis has been made laterally. And as Dr. W. J. Mayo, whose experience is unrivalled, points out, the side-to-side anastomosis seen a few months after its formation differs from the end-to-end very slightly in appearance; a small elbow alone marks the point at which the junction has been made.[19]

THE KINETIC THEORY OF SHOCK AND ITS PREVENTION THROUGH ANOCI-ASSOCIATION (SHOCKLESS OPERATION).

BY GEORGE W. CRILE, M.D.

Introduction.

WHEN a barefoot boy steps on a sharp stone there is an immediate discharge of nervous energy in his effort to escape from the wounding stone. This is not a voluntary act. It is not due to his own personal experience (i.e., his ontogeny), but is due to the experience of his progenitors during the vast periods of time required for the evolution of the species to which he belongs—i.e., his phylogeny. The wounding stone made an impression upon the nerve receptors in the foot similar to the innumerable injuries which gave origin to this nerve mechanism itself during the ancestral experience. The stone c association, and the appropriate gy automatically followed. If the applied there is a discharge of nervous energy from the sensation of tickling, but if the sole of the foot is repeatedly bruised or crushed by the stone shock may be produced. The body has had implanted within it other similar mechanisms of ancestral or phylogenetic origin, the purpose of which is the discharge of energy *for the good of the individual.*

According to my kinetic theory of shock it is one of these mechanisms—the motor mechanism in particular—which, through its phylogenetic association with injury of the individual, is responsible for the discharge of energy represented by shock. According to this theory, the essential lesions of shock are in the brain cells, and are caused by the conversion of potential energy in the brain cells into kinetic energy at the expense of certain chemical compounds stored in the cells.

There is strong evidence that animals capable of being shocked are animals whose self preservation originally depended upon some form of motor activity. In man and other animals this motor activity expressed itself in running and fighting; hence the motor mechanism comprises the muscles and all the organs that contribute to their activity.

Motor activity is excited by the adequate stimulation of the nerve ceptors, both of the *contact* ceptors in the skin and in other tissues, and of the *distance* ceptors or special senses. I assume that stimulation of the distance ceptors (special senses) is as potent as stimulation of the contact ceptors in producing a discharge of energy. I assume, further, that the environment of the past (phylogeny), through the experience of adaptation to environment, predetermines the environmental reactions of the present. In each individual at a given time there is a limited amount of potential energy stored in the brain cells. Motor activity, expressed as action or emotion, following upon each stimulus, whether traumatic or psychic, diminishes by so much the amount of potential energy left in the brain cells. Stimuli of sufficient number or intensity inevitably cause exhaustion or death. If this motor activity, resulting from response to stimuli, takes the form of obvious work performed, such as running, the phenomena expressing the depletion of the vital force are termed *physical exhaustion.* If the expenditure of vital force is due to traumatic or to psychic stimuli which lead to no obvious work performed, especially if the stimuli are strong and the expenditure of energy is rapid—the condition is designated "shock." Shock may, of course, be produced by physical injury without anæsthesia. The first question then is:

Does Inhalation Anæsthesia Prevent Shock?

The word anæsthesia—meaning without feeling—describes accurately the effect of inhalation anæsthetics. Although no pain is felt in operations under inhalation anæsthesia, the nerve impulses set up by a surgical operation reach the brain. We know that not every portion of the brain is fully anæsthetised, since surgical anæsthesia does not kill. The question then is, What effect has trauma under surgical anæsthesia upon that portion of the brain that remains awake? If in surgical anæsthesia the traumatic impulses of operation cause an excitation of the wide-awake cells, are the remainder of the cells of the brain, despite anæsthesia, influenced in any way? If influenced, they are at least prevented by anæsthesia from expression through conscious perceptions or muscular action.

We determined whether or not the "anæsthetised" cells are influenced by trauma under inhalation anæsthesia by noting in patients the physiological functions after recovery from anæsthesia and by examining the brain cells of animals which had been subjected to shock-producing trauma. It has long been known that the vaso-motor, the cardiac, and the respiratory centres discharge energy in response to traumatic stimuli applied to various sensitive regions of the body during surgical anæsthesia. Our experiments have shown that if the trauma is sufficient, exhaustion of the entire brain may be observed after the effects of anæsthesia have disappeared; that is to say, despite the complete paralysis of voluntary motion and the loss of consciousness due to inhalation anæsthesia, the traumatic impulses do reach and influence every other portion of the brain. We observed also that in every instance the changes in the brain cells of the cortex and of the cerebellum were more marked than in those of the medulla and the cord. (Fig. 2.)

There is also strong negative evidence that traumatic impulses are not excluded by ether anæsthesia from that part of the brain that is apparently asleep. For if the factor of fear be excluded, and if in addition traumatic impulses are prevented from reaching the brain by blocking the nerve trunks by local anæsthesia, then, *despite* the intensity or the duration of the trauma, within the zone so blocked no exhaustion follows after the effect of the anæsthetic disappears changes are noted in the brain cells. that inhalation anæsthesia e or no protection from trauma is derived from the following experiments Dogs whose spinal cords have been divided at the level of the first dorsal segment and that have then been kept in good condition for two months show a recovery of the spinal reflexes, such as the scratch reflex. Animals so treated are known as "spinal dogs." Now in a "spinal dog" the abdomen and the hind extremities have no direct nerve connexion with the brain. ers at a time we submitted such dogs to a con of the abdominal viscera and of the hin resulted but slight change in either respiration, and no microscopical alt

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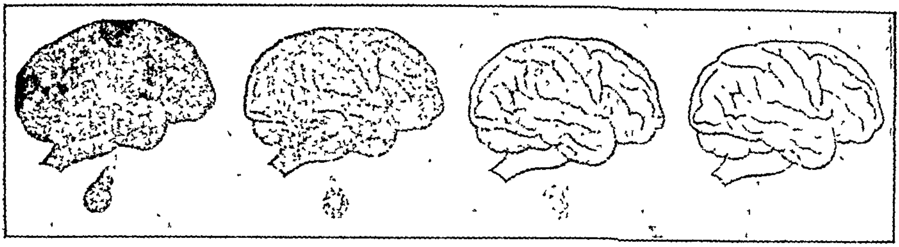
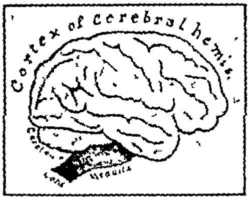
[18] Lyon Chirurgical, 1908, vol i., p. 379.
[19] Annals of Surgery, 1910, vol. l., p 200

FIG. 1.—*Classification.*



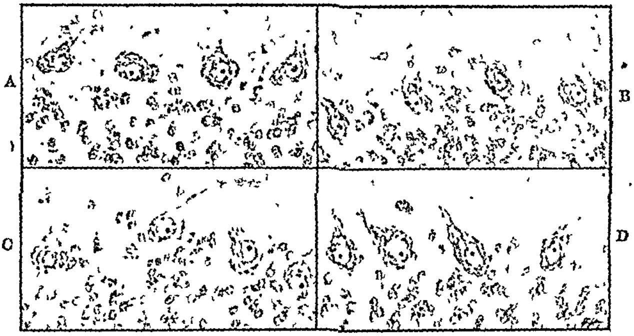
Hyperchromatic. Normal. Fatigued. Exhausted.

FIG. 2.



Changes more marked in cortex and cerebellum than in medulla and cord.

FIG. 3.—*Areas from Cerebellum.*

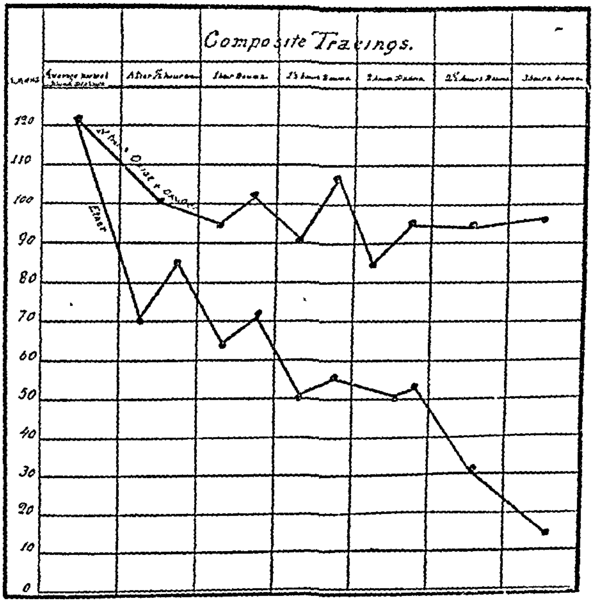


A, Normal dog. B, Shocked "spinal" dog. C, Shocked dog (ether anæsthesia). D, Shocked dog (N_2O anæsthesia).

FIG. 4.

A Marathon runner.

FIG. 5.



pressure. We had hoped that the brain cell changes in shock were due wholly to low blood pressure, but in our blood transfusion experiments we found that, in addition, there was another definite factor. This was shown by the following experiment.

The blood-vessels of two animals were anastomosed, and as the blood pressure in the traumatised animal began to fall fresh blood was added, so that during the entire séance of shock trauma the blood pressure was maintained at the normal level. Specimens of the brain were removed from the living animal and brain cell changes were demonstrated, but it required much more trauma to produce these changes than in the animals whose blood pressure was allowed to take its course.

We conclude that anæmia is a factor in producing brain cell changes in shock, yet it certainly is but a secondary factor.

Are Traumata of all Parts of the Body Equally Capable of Producing Shock?

Innumerable nerve receptors have been implanted in the body for the purpose of effecting adaptation to environment. Some of these receptors, such as those which assist in acquiring food, may be designated *beneceptors*, while other receptors which have as their function the protection of the body against harmful or nocuous contacts are called *nociceptors* (Sherrington). As one would expect, therefore, the nociceptors are not distributed throughout the body equally, but are most numerous in those parts which in the course of evolution have been most frequently subjected to injury. So the nociceptors of the skin are most numerous in the hands and the feet, while the back, being less exposed, has fewer ociceptors. Likewise in the interior and more protected rts there are few nociceptors, and there are none in the in, which has ever been protected by the skull.

If the kinetic theory of shock be correct, then according to the general biologic law of adaptation we should expect that surgical shock could be produced in those parts of the body only in which have been implanted sensitive nerves or nociceptors. On the other hand, since there are few or no nociceptors in those parts of the body which have always been protected against injury and which have not been presented to our enemies and to our rough environment, then, according to this theory, the injury of these parts cannot produce shock. From numerous experiments we find that little or no true surgical shock can be produced by trauma of the deep parts of the back behind the peritoneum and in the brain.

We therefore took the brain as a representative tissue having no nociceptors or pain nerves, the physical trauma of which could produce an adaptive response, and we put this to a direct experimental test, as follows.

The skull of a dog was cut away under combined local and general anæsthesia. The brain was traumatised with rough gauze and instruments, and was extensively cauterised even to the extent of gradual destruction of one hemisphere.

No noticeable change in the blood pressure was apparent during the operation, and no change was observed in the brain cells of the opposite uninjured hemisphere. Our experiment showed, therefore, that the cerebral hemispheres possess no mechanism for the production of pure surgical shock. Collapse from interference with the medullary centres is, of course, not true surgical shock.

Now, if trauma of sensitive parts of the body produces an adaptive response by the brain cells causing a release of energy, and if this release of energy, when the trauma is sufficiently strong or repeated with sufficient frequency, leads to functional exhaustion and brain cell changes, then *with equal facility exhaustion should be produced by perceptions through the special senses, such as seeing or hearing danger.* Fear and trauma being phylogenetically akin, either one alone or associated with the other should cause shock. This point was then studied.

Can Fear Alone Cause Shock?

This was put to a direct experimental test as follows.

Rabbits were frightened by dogs, but were not injured and were not chased. After various periods of time the animals were killed and their brain cells were compared with the normal.

Widespread changes were seen. The principal clinical phenomena were rapid heart, accelerated respiration, prostration, tremors, and a rise in temperature. The dog showed similar phenomena, excepting that instead of muscular relaxation, as in the rabbit, the dog show aggressive muscular action. Both the dog and the rab were exhausted, and although the dog exerted himse actively and the rabbit remained physically passive, th rabbit was much more exhausted. (*Fig.* 8.)

Observations were made upon the brain of a fox chased f two hours by members of a hunt club and finally overtake by the hounds and killed. The brain cells of this fox compared with those of a normal fox showed extensiv physical changes in most of the cells. (Fig. 9.) The brain of dogs and woodchucks after fighting showed simila changes. Emotional stimulation alone or combined wit physical activity showed the same changes as physica injury. The brains of salmon at the mouth of the Columbi river were compared with the brains of other salmon at th head waters in the spawning season. Like changes wer seen. Even the brain cells of electric fish were similarl altered after discharges.

That exhaustion follows fright and terror is attested b every human experience. Fear causes a low threshold, an in that stage the effects of traumatic or psychic stimuli ar augmented. A patient going under anæsthesia in fea displays the fear phenomena throughout the operation, an *therefore is shocked more readily than if he were withou* fear.

Insomnia.

If all the foregoing conditions show brain cell change characteristic of exhaustion, then keeping animals awak should show the same. The rôle of insomnia in producin exhaustion was put to experimental test as follows: Rabbit were kept awake for 100 hours. They then showed physica exhaustion and the brain cell changes characteristic o fatigue. Sleep restored both the physiologic condition an the physical status of the brain cells. (Fig. 10.)

Influence of other Causes of Vital Depression.

Again, if the kinetic theory be correct, if an animal ha already been subjected to other influences which caus morphologic changes in the brain cells and it be then subjected to trauma, such an animal would be expected t endure less trauma, and survive, than a normal animal. Among the agencies that cause the characteristic changes o fatigue in the morphology of the brain cells are anæmia, infection, toxæmia, physical exercise, old age, starvation, exophthalmic goitre, fear, worry, and physical injury. (These studies will soon be published in detail.) Further observations have shown that just in proportion to the deterioration in the brain cells from any of these factors by so much less can an animal endure injury and survive.

Type of Trauma.

It may here be added that the intensity of shock depend entirely on the type of trauma to which one is subjected, Tearing, crushing, and bruising cause the greatest shock, while comparatively slight shock would result if the bod were cut to pieces with a razor. This observation is s commonplace that its significance is easily lost—namely that the more nearly the trauma resembles harsh contac with environment and the method of attack of the carnivora the greater will be the resultant shock.

The Effect of Drugs.

Such stimulants as strychnine and nicotine in physiologi dosage cause physical exhaustion and brain cell changes. First, there are strong convulsions; if the dose is repeate the convulsions become milder until the stage of exhaustio is reached. It is as rational to treat the exhaustion of shock with strychnine as to treat the exhaustion of strychnin with trauma. These agencies are synergistic. Alcohol i large doses causes physical exhaustion and brain cell changes. Morphia and scopolamine even in toxic dose cause no apparent changes in the brain cells. The quiet and solace produced by these drugs undoubtedly tend to conserve the output of energy. Morphia and scopolamine in physiologic dosage diminish but do not prevent shock from trauma, but they do prevent psychic shock. Under the influence of morphia no one is brave, no one is a coward; one is indifferent to danger. This negative state induced by morphia and scopolamine is due to the depression of the associational power of the brain—the depression or obliteration of associative memory—and this is an important clinical cue.

FIG 6

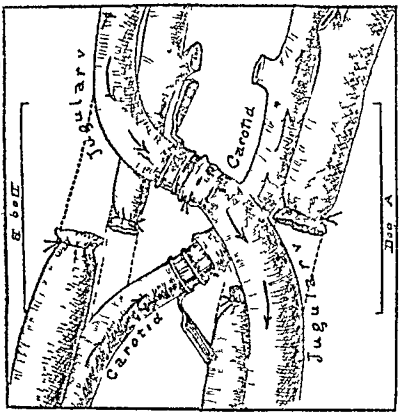
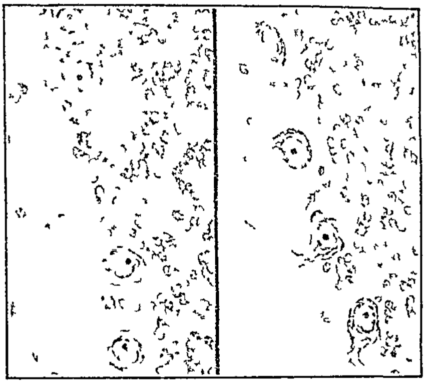


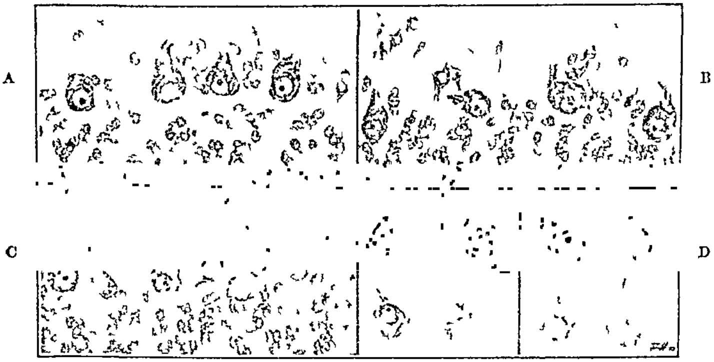
Diagram showing anastomosis of the circulation of Dog A and Dog B

FIG 7



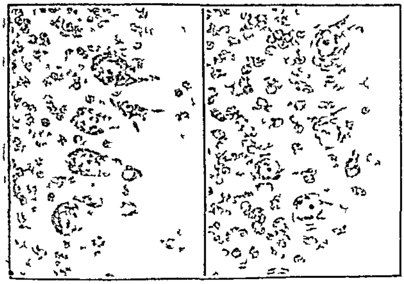
Symbiotic shock Experiment 2 (259A) The cerebellum from the unshocked Dog B (recipient) and from the shocked Dog A (donor)

FIG 8



Areas from cerebellum of rabbit A Normal rabbit B Rabbit during fright C Six hours after fright D Characteristic change in Purkinje cells in fright

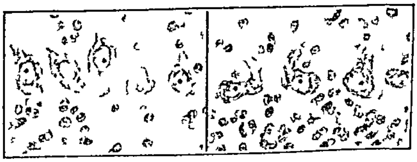
FIG 9



Area from cerebellum of normal fox

Area from cerebellum of fox chased by hounds

FIG 10



Insomnia Rabbit awake 109 hours

Insomnia Rabbit awake 109 hours normal sleep 6 hours

The Treatment of Shock.

It is obvious at once not only that stimulants are without value, but that they do harm. Their use is as illogical as is an attempt to ward off bankruptcy by spending more money. Morphia and sedatives generally are valuable as conservators of energy. The one important goal is overcoming the destructive effect of anæmia on the brain. Can this be done by using saline infusions? An extensive research on this point has shown conclusively that the blood cannot be diluted with saline solution, except temporarily. If saline solution is infused continuously into a vein of a normal dog the animal may be killed in from five to eight minutes. What is the cause of death? Is it asphyxia produced by transudation into the lung? No. It is the mechanical fixation of the abdominal and the thoracic respiratory muscles and of the diaphragm through enormous distension of the abdominal viscera. The walls and the lumen of the stomach and intestines are packed with saline; the liver is enormously engorged; the spleen is enlarged; the saline solution runs out through the blood vessel walls just as fast as it enters. Hence in saline solution we have a definitely limited though useful remedy. Posture, bandaging, the pneumatic rubber suit—all are useful, but none is final. The final remedy must be some circulating medium that will remain in the circulation, that will do the work of blood, and that when introduced in large enough quantities will develop a peripheral resistance through stretching the elastic blood vessel. This peripheral resistance based on passive elasticity will then serve as a substitute for the exhausted vasomotor centre. The heart will continue to act so long as the coronary arteries receive a pressure of 40 or more mm. Hg. and as the proper nutriment is given the heart muscle. The only fluid that will answer these purposes is blood—human blood.

Having determined this, I was driven to work out the problem of transfusion of blood, first by experiment in the laboratory, later by practical application in the clinic. This has proven ideal. Almost no case of shock will die of shock alone if given an adequate transfusion of human blood. The transformation is dramatic, especially in shock with hæmorrhage. One hint here in advance of detailed publication—low blood pressure deteriorates the brain cells, therefore avoid the final collapse by timely transfusion. The transfusion of blood is a specialised technique, the details of which should be mastered in advance of the emergency.

As an interesting sidelight we several years ago found in our investigation that beheaded dogs could be kept "alive" (?) a half day or longer either by slow adrenalin infusion or by over-transfusion of blood, thereby maintaining a normal blood pressure without assistance from the brain.

Having now considered the cause and the treatment of shock as elucidated by our experimental and clinical researches, we will next consider a matter of direct practical importance—viz., the prevention of shock—the shockless operation through anoci-association.

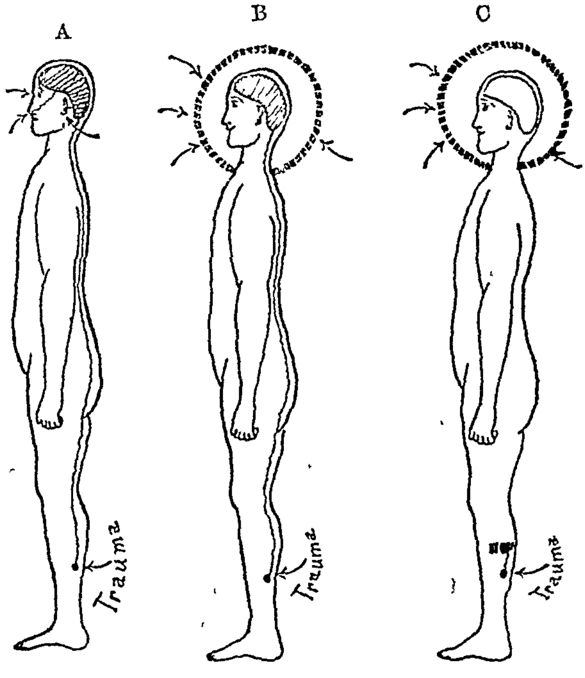
Anoci-association.

On these foregoing premises the kinetic theory rests. On the kinetic theory a new principle of operative surgery is founded. This principle can best be expressed by coining a new word—viz., anoci-association. An adequate stimulus with or without inhalation anæsthesia, whether from *trauma* or from emotion, causes the brain cells to *discharge some of* their stored energy—that is to say, the sight of the operating room, the spoken word implying danger, the taking of the anæsthetic, the instrumental injury of tissues in the course of the operation, and the traction of the stitches *after* operation, all are adequate stimuli. Therefore, the stored energy of the brain cells is consumed during surgical operations and during psychic strain. Obviously the only practical method of preventing the consumption of this stored energy of the brain cells is the development of a principle of operative surgery the practice of which will exclude from the brain the stimuli of the special senses and the stimuli of common sensation. This is the principle of *anoci-association*, meaning the exclusion of all *nocuous* or harmful *associations* or stimuli. (Fig. 11.)

The principle of anoci-association may be illustrated by the wrecked *Titanic*. The story of the stress and the psychic strain of the survivors is known, that of the lost may easily be imagined; the future haunting memory of this experience by the survivors may be safely predicted. Such is the result of the conventional surgical operation Now, if a survivor of this ship had been so skilfull anæsthetised on his bed just before the accident that h knew nothing of the impending disaster, and if he then ha been gently carried up on deck, lowered into a lifeboat, an taken aboard the rescue ship without being allowed t *awaken from his anæsthesia* until in bed in a comfortabl state-room,—if then he was told that he had been transferre from the sinking ship, but that he was now safe and woul soon see his home, this would be anoci-association.

Now is there a single anæsthetic that will exclude a nocuous or harmful physical and psychic stimuli from th brain? By blocking nerve conduction local anæsthetic protect the brain from local operative injury, but they do n protect the brain against destructive psychic strain; inhal tion anæsthetics exclude the psychic stimulation of th brain cells, but do *not* exclude the operative stimulation and anæsthetics introduced hypodermically, being u controllable, are excluded on principle. Each anæstheti covers a part of the field, but there is no single agent tha *alone* can produce *anoci-association*, which is the goal operative surgery. We therefore do not advocate ethe alone, nor chloroform alone, nor nitrous oxide alone; we d not advocate local anæsthesia alone, nor morphine and scopo amine alone, nor spinal anæsthesia alone, but throug *selection* and *combination* of anæsthetics we aim to attain a anæsthesia that will exclude all stimuli from the brain, an thereby attain anoci-association.

FIG. 11.



Anoci-association diagram.

A, Auditory, visual, olfactory, and traumatic noci impulses reaching the brain. B, Auditory, visual, and olfactory associations excluded. C, Nerve blocked by cocaine; patient in anoci-association.

The description of this technique will be limited to abdo minal and goitre operations which will serve as illustration of the principle.

Abdominal Operations.

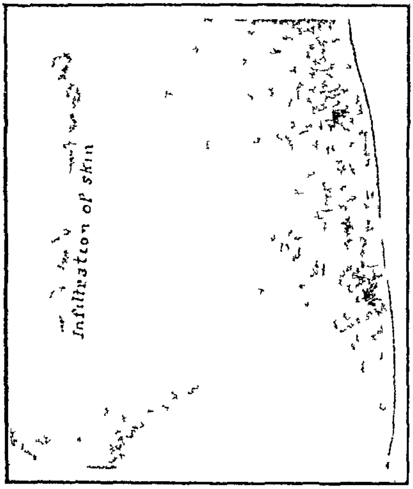
1st.—Excluding infancy, old age, and depressed vitality, we fir administer, as an average, 1/6th of a grain of morphine and 1/150th of grain of scopolamine one hour *before operation*.

2nd.—If local anæsthesia alone is employed, novocaine in 1/400 solu tion is used by progressive local infiltration.

3rd.—If inhalation anæsthesia is employed we administer nitrous oxide—either alone or with ether added as required.

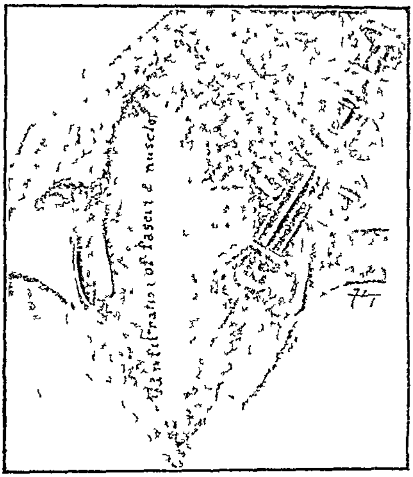
4th.—As soon as the patient is unconscious, first the skin and the the subcutaneous tissue is infiltrated with 1/400 novocaine. In order to spread the novocaine immediate local pressure is applied with the hand Anæsthesia is immediate. Incision through this anæsthetised zone exposes the fascia. The fascia is then novocainised, subjected to pres sure, and divided. This brings us to the remaining muscle o posterior sheath and to the peritoneum. These structures are then

FIG. 12A.



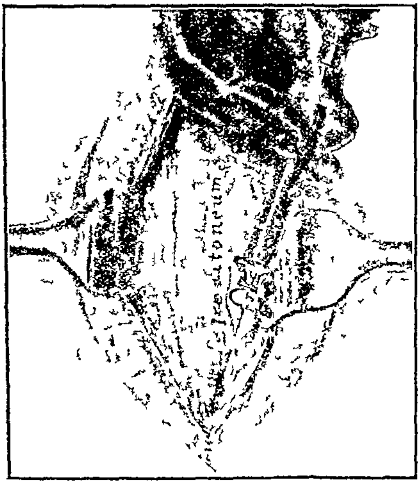
Infiltration of skin and subcutaneous tissue with 1 : 400 novocaine.

FIG. 12B.



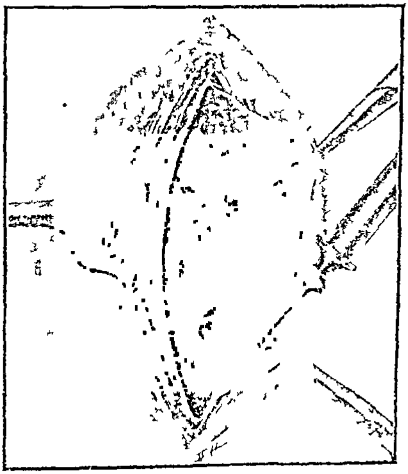
Infiltration of fascia and muscle.

FIG. 12C.



Infiltration of posterior sheath and peritoneum.

FIG. 12D.



Peritoneum inverted. Infiltration with ½ per cent. of quinine and urea hydrochloride.

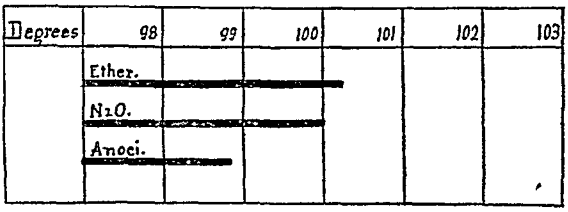
infiltrated with novocaine, subjected to pressure, and divided within the blocked zone. If blocking has been complete, then upon opening the abdomen there will be found no increased intra-abdominal pressure, no tendency to expulsion of the intestines, and no muscular rigidity. (Figs. 12 A–D.

5th.—The peritoneum is next everted and a ½ per cent. solution of quinine and urea hydrochloride is infiltrated about the line of proposed sutures, and as before the parts are then subjected to momentary pressure. This infiltration serves as a block, and as its effects last for several days it should prevent, or at least minimise, the post-operative wound pain and the post-operative gas pains, and by so much minimise post-operative shock. Quinine and urea causes a certain amount of œdema of tissue which lasts for some time after the wound is healed.

6th.—The relaxed abdominal wall will permit exploration of the entire abdominal cavity with ease. If there is no cancer nor acute infection in the field of operation, then the following regions may be blocked as completely and in the same manner as the abdominal wall—viz., the meso-appendix, the base of the gall-bladder, the uterus, the broad ligaments and the round ligaments, the mesentery, and any portion of the peritoneum. On account of the absence of nociceptors operations on the stomach and intestines made without pulling on their attachment cause no pain, and hence the novocaine infiltration of these viscera is not required. If the brain has received no stimuli during the operation then the closure of the upper abdomen is as easy as the closure of the lower—all is done with the ease of relaxation. What is the result? No matter how extensive the operation, no matter how weak the patient, no matter what part is involved, if *anoci* technique is perfectly carried out the pulse-rate at the end of the operation is the same as at the beginning. The post-operative rise of temperature, the acceleration of the pulse, the pain, the nausea, and the distension are minimised or wholly prevented. (Fig. 13.)

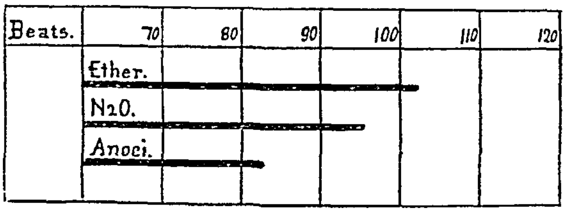
FIG. 13.

A



The temperature. Each heavy line represents the average 5 P.M. temperature of 10 patients during the first four days after operation.

B



The pulse. Each heavy line represents the average 5 P.M. pulse-rate of 10 patients during the first four days after operation.

Graves's Disease.

I believe everyone will agree that a technique that can carry an advanced exophthalmic goitre case through an operation without increasing the pulse-rate can all the more readily do as much for any other operation. This can be done by the following technique, the operation being either ligation or lobectomy. The patient's consent to an operation is secured before hospital treatment is begun.

Ligation is performed without removing the patient from bed. In performing ligation nitrous oxide and oxygen may or may not be administered; but the brain is always protected by a complete local [illegible] complete quinine and [illegible] operation. [illegible] thetised with nitrous [illegible] been given under the guise of treatment for several days previous to the operation, the patient when anæsthetised is free from psychic strain, as he is under the impression that he [illegible]

When anæsthetised t [illegible] division of tissue is prec [illegible] impulse can reach the [illegible] the field is completely blocked by quinine and urea hydrochloride injected with a hypodermic needle. The patient is kept unconscious, under anæsthesia, until he has returned to his room and until his room is restored to its condition when administration of the anæsthetic was begun. Since in the course of the cycle from his room to operation and return his brain has received *no activating stimuli there can be no* change in the pulse. No record of the operation has been written either upon the subconscious brain or the conscious brain.

The benefits do not end, however, with the immediate results. *The post-operative hyperthyroidism is prevented or minimised*, and the later clinical results are improved to the same extent as are the *immediate* results.

When a case of Graves's disease which is not under surgical treatment is subjected to a severe psychic shock—to a heavy nervous strain or to intense worry—what happens? The disease is aggravated for weeks or for months, and not infrequently death results. The evil effects of the stress of facing the operating-room are not only seen immediately, but are perpetuated on the following days and weeks and months by their frequent recall. From this handicap the *anoci* patient is free, and by so much is the convalescence speeded on its way.

Comments.

In carrying out the details of anoci the surgeon must re-educate himself; his assistants must be especially trained; in short, in the patient's entire cycle of entrance, operation, and exit there must be no sharp points of contact, either psychic or physical. Those who have had training in local anæsthesia will find the details easy. This technique will reach its purpose only if rigidly carried out; if carried out perfunctorily as a dull ritual it will fail.

Inhalation Anæsthetic.

The use of nitrous oxide, while not a necessary part, is an important part of the technique of anoci-association. Its greatest value is its protection of the brain cells; but another advantage is the fact that if the local blocking is faulty or the surgeon needlessly rough, the patient retains still the power of offering a much needed self-protection. Then, too, ether definitely diminishes the immunity of the patient—nitrous oxide does not.

What Effect has Anoci on the Morbidity and the Mortality?

The operation morbidity includes the immediate post-operative pain in abdominal operations, gas pains, painful scars, nervousness, reduced efficiency through want of energy, and aseptic wound fever.

Post-operative pain.—Quinine and urea hydrochloride wholly prevents pain if it is injected into the entire wound. But quinine and urea causes some œdema of the wound; hence one should limit the wound infiltration to cases needing it—e.g., exophthalmic goitre cases—bad risks generally.

Post-operative gas pain.—This baffling phenomenon may be largely or wholly prevented by the technique already described—i.e., by the hypodermic infiltration with quinine and urea hydrochloride of a wide margin of tissue, including every part of the divided peritoneum. The stitches must be inserted within the blocked zone. Post-operative gas pain can be explained as a biologic adaptation to overcome infection. In the course of evolution all abdominal penetrations are infected, but the peritoneum is able to overcome most infections if they can be localised. To localise an infection the intestine and the abdominal wall must be kept fixed against each other; that they may do so each must be inhibited; the intestine must be distended with gas, the abdominal muscle must be rigid. If the intestine be distended with gas and fixed then digestion must cease. If digestion be arrested then there is anorexia, or even vomiting to expel food from the stomach. This shows us how post-operative gas pains are due to a biologic adaptation to overcome infection, and explains their resemblance to incipient peritonitis. Nature does not depend upon the surgeon, or perhaps she knows the surgeon too well. The test of this hypothesis is easily made. If the brain through which this adaptive response is made is kept in ignorance of the incision into the peritoneum (*a*) by progressive novocaine blocking throughout the operation, and (*b*) by post-operative quinine and urea blocking to break later communication with the brain through stitch tension, then there should be no gas pains. Clinical experience has abundantly confirmed this hypothesis. It must be remembered that if a single nerve filament escapes the block there will be gas pains.

Painful scar.—I postulate that the lesion of a painful scar is in the brain, not in the scar; that it is due to the low threshold produced by injury, and is intimately connected with a fundamental principle of nerve conduction. This fundamental principle relates to the fact that a strong traumatic or psychic stimulus produces some change in the conductivity along its cerebral arc, the effect of which is that of lowering the threshold of that arc. This might be illustrated by the phenomena following a hold-up at the point of a pistol on a certain street corner. For a long time after such a psychic stress any association with that corner would recapitulate the experience. In this manner throughout life various experiences may lower the threshold in innumerable ways. I assume that there is a similar result after a traumatic stimulus. *The arc receiving the stimulus* suffers a lowered threshold, and hence from that time on mere trifles become adequate stimuli. Such a result is seen in the sensitiveness after fractures and in the painful stumps of crushed limbs.

Now, if an operation is so performed that no strong stimulus reaches the brain either during or after the operation, then the threshold of the cerebral arc from the wound will not be lowered. Since the threshold is not lowered, contact with the scar or any injury to that part will have no more effect than will contact with any other part of the body. In other words, the scar will be no more sensitive than is the skin elsewhere. Hence, we see how painful scar may be prevented by complete anoci. Our clinical data seem to support this hypothesis, although it has not as yet been fully worked out.

Nervousness.—When in the night one is threatened with an unknown danger the brain threshold is always lowered, apparently as an adaptation to the more swift and accurate detection of the danger. Likewise when one has received a crushing physical injury there is a universal lowering of the threshold. During these states of tenseness minor stimuli have major effects, or, in other words, one is "nervous."

Now, as we have seen, the subconscious brain is tortured directly during unblocked operations under inhalation anæsthesia. The *resultant general* effect on the brain thresholds is demonstrably the same as if the injury had been inflicted without anæsthesia—i.e., after the ordeal of punishment of the subconscious mind during an operation the patient emerges "nervous," "exhausted"—and since a low threshold is lavish in its waste of nervous energy recuperation is slow. Hence there results a period of post-operative nervousness, of post-operative loss of efficiency. It is obvious—and clinical experience abundantly proves—that the threshold is preserved by complete anoci, hence the unpleasant, damaging post-operative phenomena are avoided.

Lastly, let us consider that curious phenomenon—viz., post-operative aseptic wound fever.

Aseptic Wound Fever in Ordinary Cases and the So-called "Post-operative Hyperthyroidism" in Operations for Exophthalmic Goitre.

Since it is a physical law that any form of force may be converted into heat, and that heat thus produced, if not at once transformed into motion, must increase the temperature of the body affected, we see readily why any stimulus, mechanical or physical, which normally would cause increased motor activity must cause a rise in temperature if complete motor expression is impossible. Anything, therefore, that drives the motor mechanism of the body beyond the point of normal expression will cause fever. Anger, athletic contests, fear, physical injuries, all produce a rapid oxidation of certain body compounds too great for complete translation into motion.

In operations under general anæsthesia only, we expected routinely to see some post-operative rise of temperature as a result of the suppressed power of motor response to the physical and psychical injury; but by the use of anoci-association, both during and after the operation, we discovered a change of post-operative temperature and pulse-rate. We were therefore forced to the conclusion that, barring infectic [illegible] operative fever: [illegible] in turn the re [illegible] of the operation to which natural response has been denied.

These observations lead us to a further knowledge of the phenomena accompanying Graves's disease. This disease is due to a disarrangement of the general motor mechanism whereby the threshold of the brain to both psychical and traumatic stimuli has been lowered in varying degree. The stimulus which in the normal individual would cause no appreciable change in pulse or temperature, will, in a case of Graves's disease, drive the brain and body so fast that greatly increased motor activity and a rise in temperature are caused. Anything, therefore, that raises the threshold of the brain to stimuli must diminish the susceptibility to pulse and temperature changes in the patient suffering from Graves's disease as well as in the normal individual. This explains why patients under morphia or in a stupor show little change after excitation, and why an operation performed under anoci is followed by diminished or no aseptic fever and in Graves's disease by no so-called "hyperthyroidism."

With these conceptions a surgical operation takes on a new meaning. It becomes a game of biologic chess. The patient never makes the first move, but, through the subconscious brain, counters. The many countermoves of the subconscious brain can be clearly seen and appreciated in changes of the respiration and the pulse, in muscular contractions, in the alteration of muscular tone, in vaso-motor changes, and in pupillary reactions. All of these are responses just as purposeful as the protesting cry or the spoken word of the equally injured but unanæsthetised man. When anoci is carried out perfectly no symbolic protest is made; no change in the threshold is made; no expenditure of nervous energy is made. We must re-educate ourselves so that we can hear the unspoken word; can see *the motion in* the unmoved muscle. We must practise, not mechanical surgery, but biologic surgery.

We have now stated the kinetic theory of shock and on it have formulated an operative principle (anoci-association), the practice of which enables *the surgeon to perform shockless* operations. Before stating the clinical results we will discuss more fully certain points and objections to the method.

The first point is the choice of the inhalation anæsthetic *and of the anæsthetist. As to the anæsthetic,* choice lies between the lipoid solvent anæsthetics, such as ether and chloroform, and nitrous oxide.

Ether anæsthesia has certain advantages. It is relatively safe in inexperienced hands; its bulk is small, it is inexpensive, and requires the simplest apparatus for administration. Against ether stands the malodor; the choking sensation in going under its influence; the drunken nausea sensation when becoming conscious again; and the fact that the dose required to dissolve the lipoid in the brain sufficiently to cause anæsthesia also dissolves the lipoid in the liver, the kidney, the red blood corpuscles, and other important structures. Ether also chemically hinders or prohibits phagocytosis. Hence in addition to anæsthesia this powerful chemical solvent may produce nephritis, pneumonia, anæmia, and many other tissue impairments; besides, in the presence of infection ether arrays itself on the side of infection against the patient. We have already referred to the sense of irritation and suffocation when going under the influence of ether. This is probably the meaning of the "stage of excitement," because the feeling of suffocation is one of the most powerful brain stimulants.

These objections led us to turn to nitrous oxide, an anæsthetic pleasant to take, devoid of baneful after results, and serving as a measurable protection against shock. Against nitrous oxide we found four disadvantages: (1) Its expense; (2) the insufficient muscular relaxation produced; (3) the difficulty of its administration; and (4) its lack of safety in unskilled hands. If it can be shown that the technical difficulties of nitrous oxide administration can be overcome, that relaxation can be secured and the mortality and the morbidity can be diminished by its use in connexion with local anæsthesia or in certain cases with the addition of ether, then all other questions become ethical issues with the surgeon and the hospital.

If relaxation is incomplete under nitrous oxide alone, then this lack may be met by several minutes of ether administration, or by the addition of a little ether with the nitrous oxide until relaxation is complete.

Let us now turn to the frequently made objection that nitrous oxide in unskilled hands is dangerous. This criticism can be made only by those who wish to advocate filling one of the most critical posts at an operation by untrained hands. This, too, calls for ethical not scientific discussion. The question rather is this, Is nitrous oxide a safe anæsthetic in skilled hands? That question can be answered to this extent: that four skilled anæsthetists have administered nitrous oxide for surgical operations over 18,000 times without an anæsthetic fatality. In unskilled hands I am equally sure nitrous oxide is not safe. The results in untrained hands might be comparable to those of the operation itself if the newest hospital interne were to perform major abdominal and neck operations on his first day of service.

Just as some communities have been terrified by needless surgical disasters, just so will some communities be terrified by equally needless anæsthetic deaths from nitrous oxide, probably the safest of all anæsthetics when skilfully given.

The disadvantages of nitrous oxide are almost wholly technical and can be mastered, while the disadvantages of ether are almost wholly chemical, hence not controllable. As already stated, the chemical—hence uncontrollable—disadvantages of ether are: its solvent power over various highly organised fats, such as lecithin in the red blood corpuscles, in the liver cells, kidney cells, and, of course, in the brain cells, and its harmful action in impairing or destroying the immunity of the patient. In close risks with acute infection ether alone may cause death.

The principle of anoci offers a partial solution of this difficulty in the use of ether anæsthesia, which is so satisfactory to the surgeon, so unsatisfactory to the patient. If the field of operation is blocked, then only just enough ether need be given to hold unconsciousness, and so the chemical damage may be reduced quantitatively to the minimum. *Far better this combination than nitrous oxide in any but safe hands!*

By the introduction of nitrous oxide we have added slightly to the surgical burden. The use of one kind of local anæsthetic for the immediate effect and of another for the later effect in addition to inhalation anæsthesia adds a little more to the burden; the training of the nurses and of the resident staff adds still a little more—in short, the surgical service, and especially the surgeon himself, must undergo a certain amount of re-education, or at least must gain a new viewpoint. Should the burden of the surgeon be thus increased? Here, again, it seems to me the question rather is this: Is it better for the patient? If the morbidity and the mortality are decreased, then this question, too, becomes one of good or bad conduct—of duty. To answer from any other than the patient's viewpoint is the same as if on the morning of a vitally important operation the surgeon were to put to his patient in words the thought that had been in his mind—viz.: "You are about to undergo a dangerous operation. I could lessen the danger by one-half, and could prevent most of your after-suffering, but because I am too busy a man to bother with the details that would accomplish this, you must take the double chance of suffering and death."

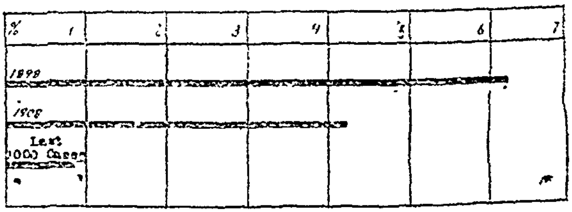
The foregoing is a summary of a large clinical experience and more than 1200 experiments on animals, most of the data of which have been published in detail in five monographs. It is hoped that more monographs of data will be published during this year. We have shown that shock may be produced by physical trauma with or without inhalation anæsthesia; that those parts of the body having the greatest number of nociceptors and which defend the most important regions by muscular action are the most shock-producing on receiving trauma. In the distribution of the defending nociceptors we have a brief epitome of our phylogenetic struggle for existence. We have shown that nitrous oxide anæsthesia as compared to ether anæsthesia is a protective agent against shock—protective through its interference with the use of oxygen by the brain cells—on the same principle as the action of a chemical fire-extinguisher. We have shown that the physical exhaustion and the brain cell changes are due to an adaptive response of the brain to the injury—a silent motionless effort to escape from the physical injury of the operation; that if the field of operation is blocked with local anæsthesia, or if the nerve connexion between the brain and the injury is blocked, physical injury can cause no shock. We have shown that the motor mechanism may be powerfully driven by psychic stimuli—perhaps as powerfully as by traumatic and physical exhaustion—and that corresponding brain cell changes are produced. We have seen that if both the traumatic and the psychic stimuli are excluded shock cannot be produced. We have offered evidence that these physical changes in the brain cells are not produced by alteration in the gases in the blood or by metabolic processes from the shock-producing psychic or traumatic stimuli. We have shown that the brain cell changes are not due to anæmia from lowered blood pressure alone. Hence we are forced to conclude that shock is an exhaustion phenomenon due to the driving of the motor mechanism by adequate stimuli, and that it is expressed by physical exhaustion and brain cell changes.

Clinical Results.

We have now presented the theory of shock and a technique by which it may be prevented; but no theory is worth more than its yield in practice, and the only test of laboratory findings is the crucible of the clinic.

The clinical results here reported have been confirmed by the personal experience of Bloodgood, Cabot, and a number of other American surgeons. The accompanying charts show the results of a critical study of the clinical data of parallel series of operations performed at the Lakeside Hospital—the last group of operations under ether alone, under nitrous oxide alone, and under anoci. Were it possible to express the subjective sensations of the patient the contrast would certainly be even more striking. There is no longer need of a post-operative recovery room. The work of the nurse is greatly minimised, and the clinical aspect both in and out of the operating room is altered. My associate, Dr. W. E. Lower, and I during the past year performed 729 abdominal sections of every grade with a mortality-rate of 1·7 per cent.; and in the Lakeside Hospital Service, where all kinds of acute emergencies are met, and where most of my own private work is done, there were performed by my associates and myself in the past year operations on 2672 patients with a mortality-rate of 1·9 per cent.—a result never before approached in the Lakeside Hospital. In the last 1000 operations performed by Dr. Lower and myself—these operations including every risk of a general surgical practice—the mortality-rate has been 0·8 per cent. (Fig. 14.)

FIG 14.



Mortality-rate per 1000 of operative cases, from Lakeside Hospital.

Cleveland, Ohio, U.S.A.

THE FIRST INTER-COLONIAL (WEST INDIES) TUBERCULOSIS CONFERENCE.—This conference was held in the Legislative Council Chamber, Port of Spain, from March 25th to 31st, under the patronage of His Excellency Sir George Le Hunte, G.C.M.G. Delegates were present representing Great Britain, the Department of Agriculture, British Guiana, Antigua, Porto Rico, Surinam, Martinique, Barbados, Jamaica, the Municipality of Kingston, Jamaica, Colombia, Venezuela, Grenada, Bermuda, and Trinidad. The President was the Hon. H. L. Clare, Surgeon-General for Trinidad. A series of resolutions were passed by the conference referring to the alarming prevalence of tuberculosis in the West Indies, and urging as administrative measures notification, housing reform, and the establishment of tuberculosis dispensaries and other measures for the detection, prevention, and treatment of the disease; the establishment of antituberculosis associations throughout the archipelago; the stamping out of bovine tuberculosis; the introduction of teaching on hygiene and sanitation in all schools; and the general adoption of efficient registration of births, deaths, and marriages as an aid in controlling tuberculosis. Several interesting papers were read, notably one by Dr. Eliseo Font y Guillot, of Porto Rico, who showed a record of good work in that island by an energetic antituberculosis association, with statutory control of the disease and ample sanatorium provision. An interesting paper was read by Dr. Angus Macdonald, medical officer of health of Kingston, Jamaica, in which he concluded that while in the tropics some things were against them in regard to tuberculosis many were in their favour, and that tuberculosis should not exist in the tropics. The principal adverse feature was unsatisfactory home conditions, crowding, and lack of ventilation at night. Other papers were read by Dr. Hatton, of Grenada; Dr. Duke, of Antigua; Dr. Hutson, of Barbados; Dr. Tucker, of Bermuda; Dr. Ross, of Jamaica; Dr. Noc, of Martinique; Mr. Saunders, veterinary delegate of the Department of Agriculture; Dr. Godfrey and Miss Hohenkirk, of British Guiana; Dr. Hovenkampf, of Surinam; and Dr. Masson, of Trinidad.

NOTE ON A CASE OF

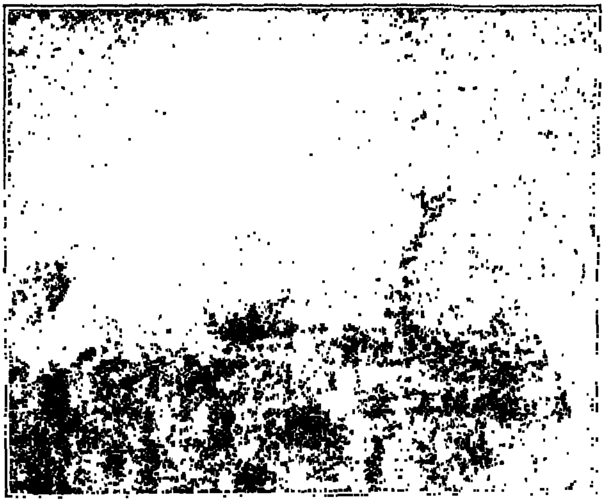
INCARCERATION OF THE CÆCUM AND ASCENDING COLON IN LESSER SAC OF PERITONEUM; OPERATION; RECOVERY.

BY IVOR BACK, M.A., M.B., B.C. CANTAB., F.R.C.S. ENG.,

ASSISTANT SURGEON TO ST. GEORGE'S HOSPITAL AND TO THE ROYAL WATERLOO HOSPITAL FOR WOMEN AND CHILDREN.

INCARCERATION and strangulation of the small intestine at the foramen of Winslow is rare enough, and recovery is rarer still, but I can find no record of any other case of incarceration of any part of the colon in the lesser sac. I think the following case is deserving of publication.

I saw the patient, a man, aged 41, at 10 P.M. on April 4th, 1913, with Dr. Henry Bazett. His history was that he had been wakened at 2 A.M. on that day with sudden, very acute pain in the right half of the abdomen, mainly above the umbilicus. He vomited at the time. The symptoms continued until 10 A.M., when the vomiting ceased and the pain was not so acute. He managed to get up and dress himself. He went to a chemist who gave him a black draught and advised him to call in a medical man. Soon after he had taken the draught the pain and vomiting returned and he was compelled to go back to bed. The pain was paroxysmal in nature, and each attack was more acute than the preceding one. The bowels had been opened normally on the morning of the 3rd, but neither flatus nor fæces had been passed since. He said he was usually rather constipated. He admitted to intemperance. He had never *had an attack like this before,* and *his health* had been good previously.



From a skiagram.

When I saw the patient at 10 P.M. he was obviously in great agony, writhing, throwing himself about in bed and crying for relief. He looked ill, with sunken eyes and an abdominal facies. He was sweating. His pulse was 125, temperature 96° F., and respirations 32. The tongue was furred. The abdomen was retracted and quite rigid and fixed on the whole of the right side. The left upper abdomen was also rigid but less so. The left iliac fossa was normal. No swelling could be detected. Per rectum nothing abnormal was felt. There were no abnormal physical signs in the lungs. While I was in the room he vomited 12 oz. of dark-green, bile-stained fluid. I made a diagnosis of acute appendicitis with perforation and peritonitis of the right half of the abdomen. I think now that his restlessness and writhing, combined with the persistent vomiting, should have made me suspect rather some form of acute obstruction. He was at once admitted to St. George's Hospital and I operated at 11.30.

Palpation under the anæsthetic revealed no abnormal mass in the abdomen. I made an incision 5 inches the right semilunar line over the appendix. It at once obvious that there was no peritonitis. could not find any trace of cæcum, appendix, or ascending colon. I enlarged the incision 1½ inches upwards, and under the margin of the liver just to the right of the middle line I felt a tense, pyriform swelling. I took this to be the gall-bladder. I made a second incision in the mid-line from the ensiform to the umbilicus and exposed the tense swelling I had felt. It lay between the stomach and the liver, and it appeared to lead down to the common duct. I still took it to be an inflamed gall-bladder. I passed a stay-suture through its wall with a view to incising it when gas came out having a fæcal odour. It was then obvious that the swelling was a knuckle of gut. The escape of gas reduced the size of the tumour and relieved the tension in the part. I closed the puncture in the wall with a purse-string Lembert suture. Now I could make out more clearly what the state of *affairs was. The knuckle of gut was a portion of* the ascending colon which had made its way into the foramen of Winslow and had been *followed by* the whole of the cæcum. It had then ruptured the layers of the gastro-hepatic omentum so that it lay under the parietal peritoneum. It was tightly incarcerated. In a few more hours it must have been strangulated by the portal vein and bile-duct. After the gas had escaped I was by great good fortune able to reduce this portion into the lesser sac, and then by pulling on the base of the cæcum to restore it and the ascending colon to their normal position. The cæcum was distended and its walls were very flabby—almost paralytic. It had a long mesentery which had enabled it to travel in this remarkable way. The appendix was normal. In view of the patient's general condition and of the state of the cæcal wall *I did not think it advisable to take any steps to anchor* the cæcum to prevent a recurrence. Both wounds were closed with fishing-gut sutures through all coats to save time.

Considering all things, the patient suffered remarkably little from shock. He actually slept four hours that night. His bowels were opened with an enema on the 5th and twice normally on the 6th. From that time his convalescence was uneventful. The wounds healed well and the stitches were removed on the 18th.

The skiagram was taken on May 1st, eight hours after the administration of bismuth. It shows the cæcum occupying its normal position. I saw the patient on May 14th and he said he was quite well.

The interest of the case lies in its rarity and the patient's happy recovery; the difficulty of making a satisfactory diagnosis to fit in with the clinical phenomena; and the fact that even when I had opened the abdomen I could not at first make out the exact state of affairs.

Wimpole-street, W.

ON THE POSSIBILITY OF ACHIEVING BY PARTIAL PNEUMOTHORAX THE ADVANTAGES OF COMPLETE PNEUMOTHORAX

IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

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VERY striking results have been reported following the induction of artificial pneumothorax.[1] Many cases which have resisted all other kinds of treatment have responded to this in a remarkable manner. The temperature has fallen and become steady, the cough diminished, the sputum decreased, and the cases have assumed an entirely favourable aspect in spite of the fact that, as a rule, only cases apparently hopeless have been treated. It need hardly be said that the object is to bring the treatment of the pulmonary affection into line with that of tuberculous disease in other parts of the body by imposing rest on the affected part. Such rest may be complete or partial, and the treatment is generally considered efficient according to the degree of rest obtained. Consequently, what is aimed at in inducing pneumothorax is the complete immobilisation of the affected lung, and only technical difficulties interfere with the attainment of this object.[2] It is clear, therefore, that according to this view the application of this method is limited to cases in which one lung can carry on respiration without being injured whilst the other lung is in a state of collapse. This is a very serious limitation, for, as a rule, the other lung is more or less affected, and although it frequently happens that both lungs improve, at other times the disease progresses in the functioning lung.

Again, there is a difficulty in maintaining a pressure sufficient to keep the lung completely immobilised. Pearson[3] gives a table of pressures in a typical case, which shows that even when 500 c.c. of gas are injected about every three weeks a negative intrapleural pressure returns which shows variations with inspiration and expiration equal to those registered before the induction of pneumothorax. Now when such variations of pressure occur we have the condition which causes the lungs to expand and contract with the respiratory movements, even though the lung is completely collapsed at the end of the expiration. Consequently, we cannot be sure of complete immobilisation of the whole lung unless we continuously keep a positive pressure in the pleural cavity.

What we have to consider in connexion with these limitations and difficulties is whether it is possible to substitute for complete collapse of the lungs such a partial collapse as would give rest in a differential manner to the diseased portions of one or both lungs. Reasoning and experiment show—and it will be convenient for the moment to limit ourselves to the case where one lung only is affected—that it is possible to achieve this by the introduction of a small volume of gas into the pleural cavity. Clinical evidence is forthcoming to confirm this and to show that it is a practical measure applicable to both sides, but this will be reserved for a future communication.

To appreciate what would be the effect of the introduction of a small volume of gas into the pleural cavity in a case where there is a focus of consolidation we require to have a clear idea of certain points in the physiology of normal respiration. We know that in the unopened chest the healthy lung, even at the end of expiration, is always in a state of elastic tension, and that this elastic tension must increase as the chest expands and the lungs dilate to fill up the increased space. It will be recognised that this elastic tension continuously tends to pull the visceral pleura away from the parietal, and that it acts in opposition to the muscles of inspiration. Again, we know that expiration is due to the contraction of the elastic tissue, but that it is regulated by the muscles of respiration. That the lungs are permanently in a condition of elastic tension is shown in the fact that when an opening is made into the pleural cavity air will rush in and the lung collapse immediately.

We may now inquire how such elastic tension is affected when a tuberculous focus is present in the lung. We know that at the focus, instead of elastic expansile tissue, we have a portion of the lung which has become an inelastic consolidated mass. It is clear that, notwithstanding that the lung may have embedded in it such an inelastic mass, the visceral pleura continues to be closely applied to the parietal during the respiratory movements. Hence the elastic portion of the lung along any axis which passes through the consolidated mass must be stretched along that axis to a greater extent, to compensate for the loss of elasticity in the consolidated portion of the lung. In other words, the elastic tension, and with this the resiliency of the lung, must be increased along such an axis.

Before passing on to examine the effect of pneumothorax on this condition of strain, it will be interesting to call attention to two physical features which the strain produces and which are disclosed by means of clinical methods. It frequently happens that an increased resonance on percussion is associated with the presence of a tuberculous focus in the lung. This indicates a certain amount of emphysema of the lung between the focus and the chest wall which is due to the increased strain imposed upon it. Again, such an increased strain tends to draw in the chest wall and the effect of this is seen in the flattening which is so frequent below the clavicle.

We may now pass on to consider how this elastic tension would be influenced by a pneumothorax induced by a comparatively small volume of gas. In such a case the visceral pleura does not lie in contact with the parietal throughout its whole extent, for the gas intervenes. When inspiration takes place those portions of the lung which remain normally expansile will dilate and tend to come in contact with the chest wall, while the displaced gas will find lodgment over the less expansile portions and prevent the increase in elastic tension which would be produced if the gas were not present.

The following experiment has been carried out to show that the lung does not expand uniformly in the condition of partial pneumothorax when consolidation is present. A small portion of a lobe of a rabbit's lung was consolidated by injecting a small quantity of fluid agar, and a cannula was inserted into the bronchus. The lung was then introduced into an air-tight chamber hollowed out of plasticine and closed in by a glass lid which allowed of the movements being watched. The bronchial cannula was made to pass out through the plasticine so that the air inside the lung communicated freely with the atmosphere. A second cannula was introduced through the plasticine into the chamber so as to allow of air being passed in and out. The chamber was now comparable to the pleural cavity in pneumothorax in which the pressure could be varied at will. When a negative pressure was produced the lung expanded, air passing through the bronchial cannula into the lung as in normal respiration. When the negative pressure in the chamber was relieved the lung collapsed, air passing out of the lung through the cannula. Now when the lung was in a state of collapse the consolidated portion bulged into the chamber, but when it was made to expand by causing a negative pressure in the chamber the unaffected portion expanded more than the portion superficial to the consolidated focus, and the position of this was finally indicated by a marked depression in the surface of the lung.

Thus the inference that the introduction of a small amount of gas into the pleural cavity prevents the lung in the region of consolidation being overstretched is fully borne out by the experiment. We see that an important advantage is gained by this. For whereas in the absence of pneumothorax the consolidated portion of the lung was stretched out with each inspiration in a line along which the expansile forces act, and was permitted with each expiration to return to its original shape, it would now remain continuously undistorted and at relative rest. We may realise more clearly what is gained by this when we consider what would happen where a pull is applied to a sponge filled in with colouring matter and placed in water. We should, if we undertook such an experiment, notice that colouring matter was with every pull driven out, and that the sponge filled itself up with fluid every time the strain was relaxed.

For the purpose of the foregoing exposition a single focus of consolidation has been considered. It is clear that the same reasoning would be applicable with each of several foci. In such a case more gas would be necessary, the quantity depending on the amount of lung tissue whose expansibility was diminished by consolidation; and, as in the case of a single focus, the more expansile portions will expand more readily than the rest and will displace gas which will find lodgment over the diseased foci. Therefore, whether the disease is extensive or not, the induction of a moderate degree of pneumothorax tends to diminish the distortion of the consolidated portions of the lung caused by the respiratory movements.

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[1] THE LANCET, vol. ii., 1911, pp. 145, 150, 153; vol. ii., 1912, p. 1642.

[2] Rist, in a Critical Review on *Artificial Pneumothorax* in the Quarterly Journal of Medicine, January, 1913, says: "The aim in pneumothorax therapy should be to produce a collapse and an immobilisation of the lung as perfect and as effective as possible."

[3] Brit. Med. Jour., Oct. 12th, 1912.

Consideration thus shows that what we gain by the introduction of a comparatively small volume of gas is a considerable limitation of the movements of the consolidated portions of the lung, and further, the prevention of the pumping action, which before the induction, by driving out tuberculous poison from the diseased foci, produced auto-inoculation.

In conclusion, we may consider the analogies existing between the conditions which are artificially established by partial pneumothorax and those which are spontaneously established by such a moderate pleural effusion as is so frequent an incident in the course of pulmonary tuberculosis. Except for its weight, such an effusion acts precisely in the same way as a gas. Consequently, where there is a tuberculous focus in the lung, such a focus may on the occurrence of a pleural effusion be brought to partial rest and auto-inoculation from it be expected to cease. Further, if the fluid were removed, the focus would again become subject to distorting forces and, in consequence, auto-inoculation would recommence and might cause an exacerbation of symptoms. Both these expectations are borne out clinically, and it is interesting to note that, if such an exacerbation follows, it becomes of diagnostic [illegible] presenc [illegible] underly. [illegible] ment of such an exacerbation would be to introduce as much gas into the pleural cavity as would be sufficient to relieve the symptoms.

THE DIFFICULTIES OF TONSILLECTOMY AND HOW TO DEAL WITH THEM.[1]

BY JOHN F. O'MALLEY, F.R.C.S.ENG.,
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EVERY tonsil can be removed completely with its capsule by a properly modified guillotine, but some cases present certain difficulties. To make clear the details of technique in dealing with these difficult cases, it is first necessary to briefly describe the method used when operating in the simpler. The patient lies on the back close to the right side of the table, with a small pillow under the shoulders and neck. This causes the head to be extended. For the right tonsil the face is turned partly to the right, and for the left the face is moved back aga [illegible] The operator stands on the [illegible] towards the head when [illegible] towards the feet for the left. The right hand holds the instrument for both sides, and the right tonsil is removed first in all cases.

The tonsillectome is inserted through the mouth, with its outer aspect towards the tonsil (the reverse of the tonsillotomy method of application), and its lower edge is used as a tongue depressor to bring the lower pole of the gland clearly into view. (Fig. 1.) It is threaded on to the tonsil, and the latter is raised upwards and outwards as far as its mobility will allow, until it bulges the anterior pillar, whilst the handle is swung over to the opposite side of the mouth. The tonsillectome lies horizontally across the mouth at this stage, with its outer aspect upwards, and the tonsil lies on the periphery of the ring, over the opening, as seen in Fig. 2. In this position, owing to the pressure exerted outwards to keep the tonsil from slipping down again, the ring of the instrument gets frequently hitched under the tuberosity of the upper jaw, which prevents the anterior pillar being put fully on the stretch by the projecting tonsil. By getting the tonsil and pillar raised as far as possible, so that the ring of the instrument is clear of all bony points, the complete dislocation of the glan the opening is greatly facilitated, and the risk o portions behind is much diminished. To attain this o the handle is now still further depressed, and the ring end raised by withdrawing the whole instrument for a short distance. This has also the effect of rolling the free aspect of the tonsil well into view, and its junction with the anterior pillar can be readily seen for the clean insertion of the blade. (Fig. 3.) This manœuvre can be easily carried out in "mobile," but is difficult in "immobile" tonsils. The tonsil is next pushed through the opening with the left [illegible] (Fig. 4), and it usually g [illegible] stance like that felt on re [illegible] The blade is now driv [illegible] the ring, and both har [illegible] it firmly and clamp momentarily what is practically the pedicle of a dislocated tonsil, as the more thoroughly this is done the smaller will the subsequent hæmorrhage be. Fig. 5 shows the depression (*a*) in the anterior pillar from which the tonsil and capsule have been dislocated. This is the area which is most prominent when the tonsil is raised, as seen in Figs. 2 and 3, and the point at which the buttonholing, referred to later, can occur. The whole instrument is next brought back to nearly the first position, as shown in Figs. 1 and 6, and then rotated sharply through half a circle around the long axis of the shaft, always towards the uvula, and finally withdrawn, bearing the tonsil on its inner aspect.

Before passing to the difficulties in detail I should like to point out that the method described above is not Sluder's. It agrees with it only in the application of the reverse or outer aspect of the instrument to the tonsil, and in the use of the finger for pushing the gland through the ring. In every other part of the technique it differs very materially, which will be soon obvious to anyone who reads and follows the diagrams in Sluder's original paper and Ballenger's description (in the third edition of his well-known text-book) of Sluder's method. While acknowledging my indebtedness to Sluder for the distinguished part he has taken in making tonsillectomy popular, I feel that it is necessary to raise this point on the question of terminology, as latterly it is becoming customary to refer to every variety of tonsillectomy done by the reverse application of the instrument as Sluder's, which shows either a lack of appreciation of important detail or knowledge of this surgeon's method.

Certain types of tonsil present difficulties to complete removal, and certain injuries to the soft parts are liable to occur until the operator has fully mastered the technique. They are as follows: (1) The left tonsil in all cases; (2) the very large tonsil; (3) the "immobile" tonsil; (4) the small, flat, friable tonsil; (5) the "pulpy" tonsil; (6) removal of the uvula; [illegible] val of [illegible] either portions of [illegible] it is its margin [illegible] inserted into the side of the tongue; (9) tearing the posterior pillar; (10) removal of portion of the pharyngeal aponeurosis; (11) tearing the mucous membrane over the point where the soft palate lies in relation to the hamular process of the internal pterygoid plate; and (12) hæmorrhage.

1. The left tonsil is a common source of difficulty to beginners, and this is due to the patient's face being rotated too much to the right side—that is, in the posture best suited for the more easy removal of the right tonsil. In this position the right cheek approaches the pillow and table, and these prevent the handle of the instrument being sufficiently depressed to raise the ring behind the tonsil, and partial removal is the result. After enucleation of the right tonsil, and before attempting to remove the left, the patient's face should be placed again in the middle line of the body.

2. The chief difficulty which the very large tonsil presents is due to its size in relation to the ring of the instrument. If both diameters of the opening are 13/16 inch it will be ample, as a tonsil nearly double this size can usually be pushed through it by the manœuvre described below under the removal of an "immobile" tonsil.

3. The "immobile" tonsil is usually medium-sized (but sometimes large) and embedded. It is firmly adherent by inflammatory bands to its bed—the pharyngeal aponeurosis—and to the faucial pillars, which accounts for its fixity. It occurs in about 10 per cent. of cases in children under 14 years of age, and more frequently in older patients, and is

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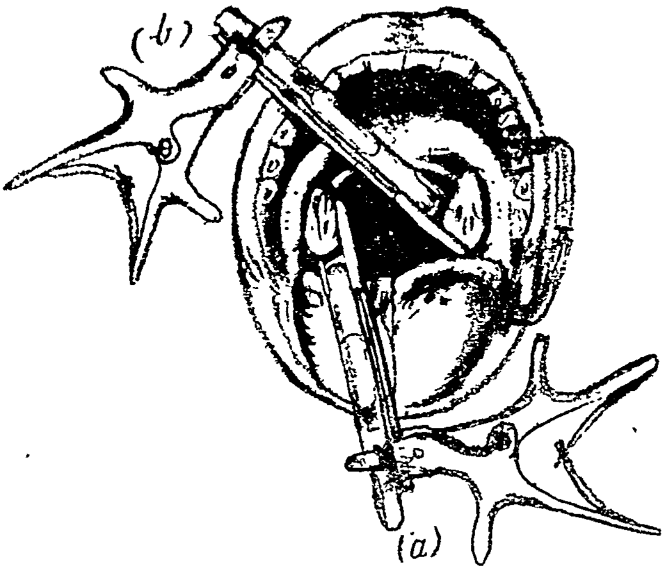
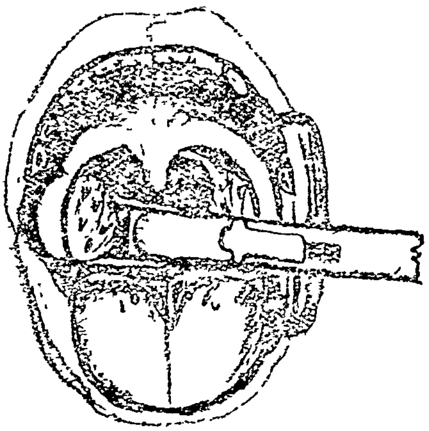
[1] A paper read before the Islington Medical Society on April 15th, 1913.

FIG. 1.



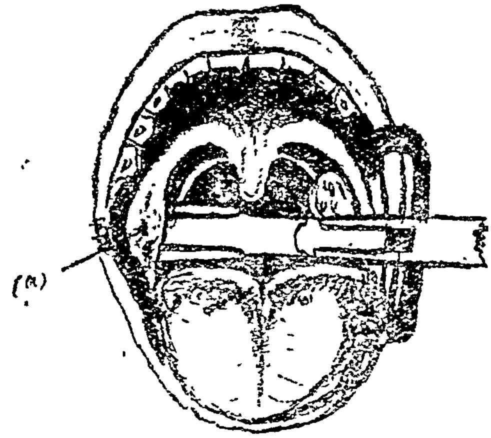
(a) Shows the instrument in the first position, engaging the right tonsil. (b) Shows the same for the left tonsil.

FIG. 3.



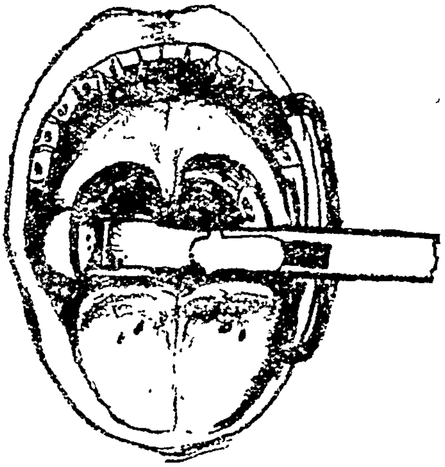
Shows the third stage. The whole instrument has been slightly withdrawn towards the left angle of the mouth, the free aspect of the tonsil is rolled more fully into view, the ring is freed from contact with, or fixation under, bony points, and the junction of the anterior pillar and tonsil is brought out distinctly for the clean insertion of the blade.

FIG. 5.



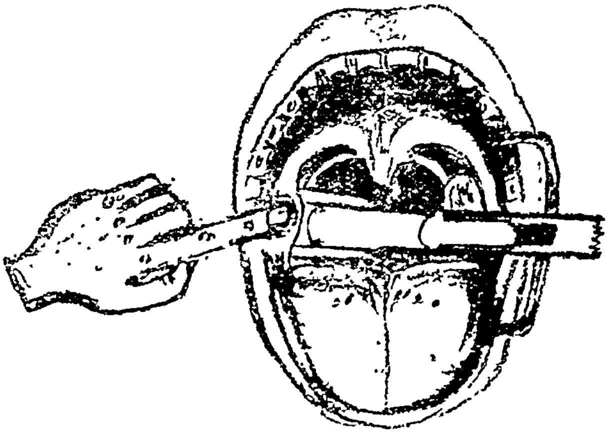
Shows the blade inserted, the finger withdrawn, and the depression indicating the point at which the tonsil was most prominent in stage three, and where buttonholing is most likely to occur during the act of driving home the blade.

FIG. 2.



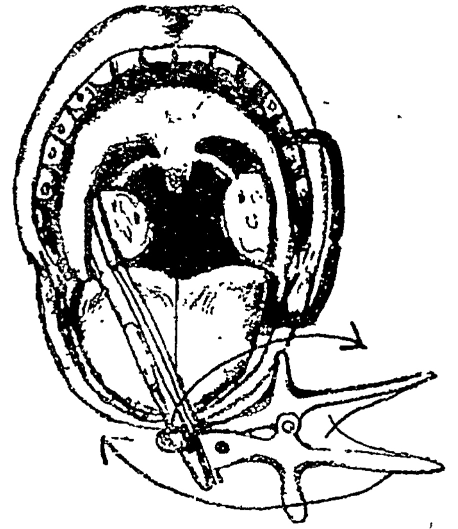
Shows the second stage of the operation on the right tonsil. The instrument is seen lying horizontally across the mouth and the anterior pillar perched over the opening. The periphery of the ring is in contact with bony points of the upper and lower jaw and may be hitched under the tuberosity of the superior maxilla.

FIG. 4.



Shows the fourth stage and indicates the point at which pressure is applied by the left index finger or thumb for the purpose of dislocating the tonsil through the ring of the tonsillectome. The blade is not yet inserted.

FIG. 6.



Shows the tonsil through the opening, the blade driven home, and
the instrument tero-posterior plane of
the mouth. At of tissue lying between
the leaded recess the edge of the blade.
which the latte
consists of the at
the blood-vessels ent

e uvula—namely, towards the operator's
towards his left for the left tonsil. The
lower arrow is not correct.

exceptionally difficult to push through the ring of the instrument with the index finger. This tonsil and anterior pillar lie rigidly across the opening of the tonsillectome and are strikingly unyielding to the pressure of the finger. The ring of the instrument must be nearer the actual size of this tonsil than in any other type of case, but the 13/16 inch opening has been found sufficiently large in every instance. When this tonsil is removed the capsule will be found thickened and shreddy, so very unlike the usual smooth, glistening type. To enucleate in this case the ring is well pressed up behind the gland (the special merits of the small, solid ring become manifest here), and the instrument is slightly rotated from side to side, as if threading it on to the tonsil. The ball of the left thumb is now applied over the gland from without inwards, whilst the other fingers rest on the patient's cheek of the same side. The thumb can exert considerably more and wider pressure than the index finger, and pushes the tonsil through as a whole, as owing to its fixity by adhesions inversion of the capsule is much less likely to occur. With the thumb exerting steady, gradual pressure, the instrument is kept slightly rotating from side to side until the tonsil is through, and it is then removed as described above in the simpler cases. The sudden loss of resistance or "dislocation" feeling is rarely felt, as the tonsil and capsule are generally pushed through *en masse*, instead of the latter being inverted. As the anterior pillar is rigid from inflammatory infiltration, it is also friable and easily torn if care is not observed in exerting the thumb pressure.

4. The small, flat, friable tonsil. This type is sometimes associated with chronic otorrhœa, which is largely maintained by recurring nasopharyngeal infection, and therefore the complete removal of all septic lymphoid tissue in this neighbourhood is of considerable importance. These tonsils present a good deal of difficulty in the enucleation by dissection method, and not infrequently have to be removed piecemeal. Being flat and soft, they offer no resistance as one tries to thread the ordinary guillotine on to them, and the latter slips outwards and upwards to be stopped by the anterior pillar, but misses the tonsil. The inner upper margin of the tonsillectome must consequently be square (not bevelled), and capable of gripping and raising a fold when pressed against a flat skin or mucous surface. It is applied below the shelving lower pole of the tonsil and *pressed firmly outwards and upwards, as far as the mobility* of the gland will allow. The handle of the instrument is depressed, the gag slightly relaxed (if widely open) to slacken the faucial pillars, and the anterior pillar is now pushed towards the tonsillectome, carrying the tonsil before it into the ring, and is then removed as described above.

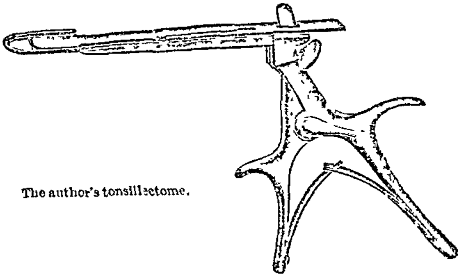
5. The "pulpy" tonsil. This tonsil is usually above the average size and occurs most commonly in children who would be classed as of a distinctly lymphatic type. It presents large crypts filled with grumous material, and the tissue is exceedingly pale, somewhat resembling in colour the exuberant granulations seen round the orifice of a tuberculous sinus. It is so soft and "pulpy" that when pushing it through the instrument ring (if the latter is decidedly smaller than the tonsil), this type of tonsil will burst and collapse under the pressure of the finger and all resistance suddenly ceases. I have met with it in about 2 or 3 per cent. of cases, and its clean enucleation with the capsule is always very difficult. When the tonsil bursts the pressure of the instrument forwards, towards the anterior pillar, and that of the finger on the soft palate, must not be relaxed, or [illegible]

6. Removal of the uvula. If the tonsillectome is introduced through the mouth on the flat instead of the edge, and the operator turns it outwards to engage the tonsil in *the opening, the uvula is commonly caught over the upper* margin of the ring, and is therefore easily included and removed. If the instrument is always inserted on its edge and applied to the tonsil in this position, and all the stages of the operation are carried out in full view, such an accident can never occur.

7. Buttonholing the soft palate may occur if the finger pushes the tonsil too far through the opening at the moment of inserting the blade. This injury is much more likely to happen when the blade is sharp and cuts into a sl the cutting edge is blunted and drives on to a leade I have seen this accident occur several times to opera [illegible], and it adds [illegible] the tonsil [illegible] "immobile," decided pressure is necessary to make it enter the instrument, *or otherwise the removal will be incomplete.* Marked depression of the gland at the moment of inserting the blade will in these cases probably result in buttonholing, owing to the adhesions of the capsule to the pharyngeal aponeurosis and anterior pillar. *This accident can be avoided by depressing* the tonsil fully and freely through the ring, even carrying the finger well below the level of the blade, whilst still maintaining the pressure of the instrument around the periphery of the gland. This has the *effect of partially* dislocating the tonsil, and the controlling finger can be then relaxed to the level of the entering blade, which is now thrust home without any risk of damaging the palate.

8. Injury to the anterior pillar margin is due to the same error as in the case of buttonholing—namely, that of depressing the tonsil too much at the moment of inserting the blade. The lower part of the instrument ring is very liable to include the plica triangularis with the adjacent *portion of the anterior pillar*, if the shaft is not lying truly across the mouth, and the junction of pillar and tonsil is not clearly seen. To avoid this the tonsil should be raised clear of the tongue in the first stage, as seen in Fig. 1, and its free aspect rolled into view before inserting the blade as shown in Fig. 3.

FIG. 7.



The author's tonsillectome.

9. The posterior pillar attachment at its lower end may be included with the lower pole of the tonsil if the instrument is pushed too far back on the lateral pharyngeal wall, and can be avoided by observing the strict rule of having a full view of all stages of the operation. It is also particularly liable to injury by the adenoid curette, which can pass so readily into the deep and empty sinus tonsillaris if carelessly or unskilfully introduced. With the patient lying in the lateral posture the right or lower posterior pillar is the one which is prone to this accident.

10. The pharyngeal aponeurosis is very thin in the sinus tonsillaris, [illegible] the smooth [illegible] noticeable [illegible] the capsule and aponeurosis are attached more or less firmly by inflamma [illegible] remove one [illegible] no plan witl [illegible] them in every case. I have never seen any ill-results follow the removal *of a portion of* the aponeurosis, and there seems no special reason why any should occur.

11. Tearing the mucous membrane over the hamular process is the result of depressing the tonsil too vigorously whilst allowing the instrument ring to be depressed at the same time, instead of keeping it raised forwards.

12. Hæmorrhage in my experience is strikingly small, as the actual loss during the operation in patients under the age of 14 averages only 3 drachms by weight in a large number of tests which were made. The subsequent bleeding was not in a single instance in well over 1000 cases severe enough to call for any special treatment or the retention of the patients in hospital after operation. I attribute

this very largely to the use of the tonsillectome, by which the vessels entering the periphery of the tonsils are first clamped and then torn across during extraction. On a later occasion I hope to deal more fully with this point (as there are many factors which influence the amount of hæmorrhage during the operation), but would like to add here that clean enucleations bleed least and cases with injury to the soft parts bleed most.

This list of difficulties and possible injuries may seem formidable, but they are no greater than those of enucleation by dissection in the hands of the inexperienced. Tonsillectomy, being an operation of precision requiring total removal, necessarily presents more difficulty than tonsillotomy, for which there is no standard of efficiency, the amount of tonsil removed in the latter varying with the case and the skill of the operator. The same type of injuries do, however, occur in the latter, though the risks of their doing so are not quite so great, as the operation is incomplete.

Weymouth-street, W.

Reviews and Notices of Books.

Manual of Tropical Medicine. By ALDO CASTELLANI, M.D. Florence, Director of the Clinique for Tropical Diseases, Ceylon; and ALBERT J. CHALMERS, M.D. Vict. & Liverp., F.R.C.S. Eng., Director of the Wellcome Tropical Research Laboratories, Khartoum, formerly of the Ceylon Medical Service. Second edition. With 15 coloured plates and 630 illustrations in the text. London: Baillière, Tindall, and Cox. 1913. Pp. 1747. Price 21*s*. net.

LESS than three years have elapsed since the first edition of this work was reviewed in the columns of THE LANCET. It is convincing evidence of the value of this book that the first edition should have become exhausted and that another should be called for in comparatively so short a time. It is generally admitted that in no branch of medicine has knowledge advanced so rapidly as in tropical medicine, fresh light being thrown almost daily upon one or another of the diseases of the tropics. It is therefore not to be wondered at that much new material has accumulated since the publication of the first edition of the "Manual of Tropical Medicine," and that the authors have had to increase the size of the book and add 500 new pages. Many new chapters have been written and most of the others have been altered or extended. Similarly the number of the illustrations has been increased from 373 to 630.

The main plan of the work has been retained, the material being arranged in three principal parts. Part I. is for the most part introductory, giving a short history of tropical medicine, and including chapters dealing with tropical climatology, tropical races, the effects of food and climate on man in the tropics, with some remarks on the endemicity and epidemicity of disease in various countries. Part II. treats of the causation of disease in the tropics under three sections—namely, physical, chemical, and parasitic; the last of these contains a large amount of new material, and includes the most recent discoveries. Part III., which constitutes about half of the book, describes in detail the various diseases met with in the tropics, classified under the headings of fevers, general diseases, and systemic diseases. The symptoms of each malady are carefully given, and the pathology, etiology, treatment, and prevention of each are fully considered. To every chapter is appended a list of references. A complete index of subjects and one relating to the various authorities referred to in the text form a useful addition to the volume.

In our opinion the new edition of this manual must prove of very great service to all who may seek assistance from its pages. We confidently recommend it to everyone who is interested in the maladies peculiar to the tropics.

Treatment after Operations. By WILLIAM TURNER, M.S. Lond., F.R.C.S. Eng., Senior Surgeon to the Dreadnought Seamen's Hospital, Greenwich, &c.; and E. ROCK CARLING, B.S. Lond., F.R.C.S. Eng., Surgeon to the Dreadnought Seamen's Hospital, Greenwich. With a chapter on the Eye, by L. V. CARGILL, F.R.C.S. Eng., Senior Ophthalmic Surgeon and Lecturer in Ophthalmology, King's College Hospital. London: Publishe for the University of London Press, Limited, by Hodde and Stoughton and Henry Frowde. 1912. Pp. 247 Price 10*s*. 6*d*. net.

THE value of the greatest care in the treatment of patient after operations is sufficiently shown by the issue of number of works on this subject. The present author describe the methods which they themselves have employed and they have made no attempt to include other methods the book being written almost entirely without refe ence to similar works. The result is a very practica book which cannot but prove of the greatest value i the daily work of the practitioner. It is especiall in emergencies, in cases in which the usual treatment ha been of no avail, that recourse is had to books. Thus when a patient has troublesome vomiting after an operation, the medical man who is looking after the case wants t know, for instance, how to stop the vomiting, which is no only very trying to the patient, but also interfere seriously with the progress of the patient toward convalescence. In this book he will find what h wants. He will be told that the vomiting after operation may be divided into three degrees of severity there is the vomiting which occurs as the patient is comin out of the anæsthesia; there is that form which occu during the first day and night; and, thirdly, there is the mor excessive variety which may last several days and may eve threaten the life of the patient. Further, he will find carefully detailed account of the method of dealing wit each of these three forms. In a similar way all the othe complications and symptoms which may occur after an operation are described. The nursing and dressing of patient after operations on different parts and organs of the bod are dealt with in detail. The chapter on the Eye is goo and it supplies what is often wanting in works on surger Altogether the book will prove a valuable aid in the treatment of patients after operations.

A Text-book of Physiology. By ISAAC OTT, A.M., M.D. Professor of Physiology in the Medico-Chirurgical Colleg of Philadelphia. Fourth edition. Illustrated with 43 half-tone and other engravings, many in colours Philadelphia: F. A. Davis Company. 1913. Pp. 911.

A SUPERFICIAL look at this volume would hardly conve the impression that between its boards are over 900 pages Its compactness is largely due to the excellent propertie of the printing paper selected. The first edition was published in 1904, and the success of the work is shown by th issue of three subsequent editions. The author is wel known for his physiological investigations, and we therefore find that this part has certain definite characteristic and special features. Amongst the latter is the relativel large space given to internal secretions, the treatment bein considerably fuller and more up to date than in any othe recent text-book. The Roentgen kinematograph, as recentl developed by Kästle and others, is introduced, while th string-galvanometer and electrocardiograms of the heart and of the heart in Stokes-Adams disease find a place. Physiological technique in general, however, is not included, as the author rightly holds that it should be learned in the laboratory. A good number of the illustrations are taken from well-known authors—British and foreign—and their source is duly acknowledged. Some, such as those that are referred to Yeo, really only appeared in Yeo's text-book, and were originally taken from a German author. Fredericq is consistently wrongly written as "Frederieque," and only occasionally do we find protein, the usual form being proteid. These, however, are small blemishes.

After the usual introductory matters, and in this connexion we think the author rather minimises the functions of ciliated cells, about 100 pages are given to digestion and 30 to absorption. Blood occupies about 60 pages. In addition to the usual information there is a short account of immunity, antitoxins, and Uhlenhut's test. It hardly seems necessary to reproduce Weber's scheme of the circulation. Respiration and circulation together occupy about 180 pages, and are treated on ordinary lines. There is a somewhat unusual fourfold grouping of secretion—as secretion by filtration, secretion proper, by glandular desquamation, and morphological secretion. The figure of a section of a suprarenal gland by Vailleton should be replaced by a more correct figure, and it seems hardly worth while to devote a whole page to the three small figures—not very illuminating figures at best—of a sweat gland. Under animal heat is recorded some of the author's own work on this subject. Muscles and electro-physiology are not overdone. Considerably over 100 pages are given to the nervous system. We miss, however, some important facts as to reflex action. We failed to find "the final common path," reciprocal innervation and other matters appertaining to reflex actions, though there is a reference to "antagonistic muscles." A short chapter on reproduction brings the work to a close. It might almost seem premature to introduce into a text-book Abderhalden's test for pregnancy. The illustrations might easily be replaced by better blocks.

This is a very readable and all-round view of physiology, with here and there its applications to practical medicine and pharmacology. It has also certain characteristics which are not usually found in purely English text-books. We wish the work every success.

Post Partum Normal. I-er Fascicule : Généralités, Organes Génitaux. Pp. 137. II-e Fascicule : Services d'Obstétrique Hygiène, Principes d'Asepsie. Pp. 150. Par CONSTANTIN DANIEL. Paris : A. Maloine. 1912.

IN the opinion of the author the puerperium does not in reality constitute a physiological state, as it is usually described, but represents a special state midway between pathology and physiology, comparable to the stage of convalescence after any general disease or to the stage of repair after a surgical operation. It is, therefore, often difficult to say when the border-line between the normal and abnormal is overstepped, but if clinical observations indicate that the various processes are taking place in a manner which experience has shown to be favourable, then the puerperium may be considered as normal. In order to distinguish clearly between what is physiological and pathological in the complex processes which are associated with the puerperium—for example, the process of involution in the genital organs—it is necessary to have a full knowledge of the anatomy and physiology of the normal puerperium. In these two volumes Dr. Daniel presents a detailed study of this important subject.

Vol. I. contains a description of the anatomy of the genital organs during the post-puerperal period which the author considers as extending to the end of lactation, and a clinical study of the various phenomena connected with this period—namely, the involution of the pelvic organs, the lochia, and the after pains. In the second volume the author expresses the view that the art of obstetric medicine has lagged behind in the progress which has been made in medicine and surgery. He calls attention to the heavy death-rate from septic diseases which still is associated with the practice of midwifery, and points out that for the successful practice of his obstetrician must have had as careful a training i
and antisepsis as the surgeon, and must be as fully aliv
the necessity of their employment in all circumstances. Only with such a training properly applied will it be possible for the practitioner to ensure a normal puerperium.

A Treatise on Diseases of the Hair. By GEORGE T. JACKSON, M.D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University; and CHARLES WOOD MCMURTRY, M.D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University. With 109 engravings and 10 coloured plates. London: Henry Kimpton; Glasgow: A. Stenhouse. 1913. Pp. 366. Price 16s. net.

IN the preface to this volume it is stated that all the sections on anatomy, etiology, pathology, and bacteriology have been written by the junior author, and that both authors have endeavoured to place before the reader all that is known about the diseases of the hair and scalp. A book on this subject cannot nowadays claim much originality in research; at best it can but summarise the discoveries of Unna and the exhaustive work of Sabouraud. We are glad to note, therefore, that the authors frankly acknowledge their indebtedness to Sabouraud.

The book is divided into five parts. The first comprises the anatomy, physiology, and hygiene of the hair; the second part has 100 pages on the essential diseases of the hair; the third part contains chapters on the inflammatory diseases of the hair; the fourth part deals with parasitic diseases of the hair; and in the concluding chapters are described those diseases of the hair which are secondary to diseases of the skin. Under the essential diseases of the hair all forms of alopecia are described, including alopecia pityroides. It would have been more correct to place alopecia pityroides in the fifth class, as a disease of the hair which is secondary to pityriasis of the scalp. Throughout the pages on alopecia prematura symptomatica the words seborrhœa and pityriasis are employed loosely, as if connoting one and the same disease. On the other hand, in the last part of the book the distinction shown by Sabouraud is very closely adhered to—pityriasis simplex and steatoides being carefully distinguished from seborrhœa. Yet the succeeding section, which describes the inflammatory condition frequently underlying pityriasis steatoides, is labeled dermatitis seborrhœica. Thus once more is proved the confusion of nomenclature still existing in dermatology, for it is acknowledged in the text that this form of dermatitis (seborrhœic dermatitis) may exist without seborrhœa. The sections on ringworm and favus are very thorough. The authors claim that in no other book, excepting those of Sabouraud, will be found so complete a presentation of what is known about ringworm and favus as in this. Although such intricate knowledge is only rarely of use for an individual case, it may be of great practical importance where an epidemic is spreading. The illustrations are very good, but out of the 109 no fewer than 53 are taken from Sabouraud. In Fig. 2 a curious error is noted—the cuticle of a hair is labeled as the medulla.

So far as we are aware there is no English volume of any size dealing exclusively with the subject of hair diseases. The works of Sabouraud, "Les Maladies du Cuir Chevelu" and "Les Teignes," are not translated, and are too lengthy for the practitioner. This work, therefore, will be of practical [illegible] complete and the pre- [illegible] ed the test of recommendation after trial by Dr. Jackson and other dermatologists.

Conférences sur les Accidents du Travail et les Affections Traumatiques. Par le Dr. OLIVIER LENOIR, Ancien Interne des Hôpitaux de Paris; Lauréat de la Société de Chirurgie; Médecin Principal de la Compagnie Paris-Orléans. Paris: Vigot Frères. 1913. Pp. 214. Price 3.50 francs.

DR. Lenoir's discussion of subjects familiar to the minds of British medical practitioners in connexion with workmen's compensation would have gained in interest for our readers if the author had not passed over all that has been, and is being, done in these islands. He has contented himself with comparisons with German legislation and German practice when illustrating his observations with examples from abroad. Familiarity with the law and medicine of two foreign countries cannot be insisted upon, and our reason for regret at the lack of reference to our own law is not that from patriotic motives we resent being ignored, but because Dr. Lenoir would, we are sure, have found much to interest him in the attitude of the law of Great Britain upon the particular aspect of accidents to workmen with which he principally concerns himself.

Passing from the general consideration of accidental injuries and of industrial diseases, he turns his attention to the previous condition of the injured workman with reference to the obligation of the employer to compensate him for an accident. He goes thoroughly into the question of how far this condition is material. In particular he discusses accidental injuries of a slight character in themselves, but serious when coinciding with physical conditions of not uncommon occurrence. Hernia ascribed to an "accident" and traumatism in connexion with tuberculosis, syphilis, and cancer, are discussed by the author from the point of view of one who desires to see the liability of the employer limited to the reasonable consequences flowing directly from an accident. He considers that conditions due to a disease aggravated or set up, or possibly alleged untruly to have been set up, by some trifling accidental injury should not be a subject for compensation by an employer who by chance has engaged a workman without ascertaining the state of his health. He urges that occurrences of this class would more properly be provided against by a State system of industrial insurance especially adapted to meet them. If Dr. Lenoir had had at his disposal the cases decided under our Workmen's Compensation Acts it would have interested him to observe how the English courts administering those Acts have ignored the effect of conditions of disease as physical predisposition on the part of the workman in saddling the employer or his insurers with responsibility for "accidents" which no precaution could have avoided except that of rejecting the workman upon his application for employment. The opening 25 pages of "Knocker's Digest of Workmen's Compensation Cases" would supply Dr. Lenoir with plenty of examples of this.

Another aspect of syphilis in its relation to the liability of the employer, besides that of its effects in increasing the seriousness of slight injuries, is discussed by the author under the heading of Glass-blowers' Syphilis (Syphilis des Verriers). The tube used for blowing glass, where no mechanical means are used, is passed from mouth to mouth by a boy, and by two workmen of successive grades, all these applying their lips to it in one operation of blowing. The favourable opportunities thus offered for the spreading of the disease, if it exists in the workshop, need not be dwelt upon, but Dr. Lenoir, who has a lawyer's desire to see liability attach where it should justly be attributed, points out that, apart from the question of the employer's duty to enforce sanitary precautions, there must always be a difficulty in proving the presence of syphilis in the workshop, and of attributing any case of mouth infection to this rather than to some other cause. He also suggests that the abrasion, without which infection cannot take place, is not an accident if it is due to the ordinary performance of an every-day duty and not to any special risk affecting the person injured.

Dr. Lenoir's book contains much interesting and suggestive matter and a useful bibliography of foreign literature relating to the subjects indicated.

Glandes Surrénales et Organes Chromaffines. Par M. LUCIEN, Professeur Agrégé, Faculté de Médecine de Nancy; and J. PARISOT, Chargé des Fonctions d'Agrégé de Médecine, Nancy. Avec 100 figures dans le texte. Paris: F. Gittler, Société d'Éditions Scientifiques et Médicales. 1913. Pp. 453.

THE use of a general title, "Les Glandes à Sécrétion Interne—Anatomie, Physiologie, Pathologie," leads us to suppose that this volume on the suprarenal glands is the first of the series. It is divided into four parts, the anatomy, physiology, general pathological anatomy of the suprarenal glands, and lastly, about 100 pages are given to the suprarenal symptoms in pathology. First, a short account is given of the comparative anatomy and histology of the glands from mammals to fishes, their development, and the penetration of the chromaffin elements into the cortical layer, and the final organisation of the mammalian gland. The histology and histo-physiology are described in considerable detail, as well as the changes in structure during various physiological conditions, such as muscular work, inanition, gestation, and hibernation, and the condition of the gland at different ages in the human subject is also described. The question of accessory suprarenals and the chromaffin organs in all vertebrates brings the first part, extending to nearly 100 pages, to a close.

Part II. deals with their physiology. French authors are rather fond of the term "insufficiency," and we meet it often in this work. The effects of unilateral or bilateral excision in various species are described and analysed; the effects of injecting extracts and grafting are formulated; the chemiobiology of the gland, its lipoids, pigments, chromogens, and, above all, adrenalin, are fully described, and the effects of adrenalin are illustrated by several blood pressure and other tracings. The experimental production of atheroma, as first shown by Josué, is very fully discussed—an action called by the authors "atheromatogenic." The action of adrenalin on other systems besides the vascular system and on general nutrition, including adrenal diabetes, is next considered. This leads up to the question as to the part these organs play in the defence of the organism and their assumed or so-called antitoxic function. The authors claim for them a very wide, far-reaching rôle in the economy.

The third part, about 80 pages, dealing with pathology, is complementary to the previous parts. It is succinct and is illustrated by several figures, naked-eye and microscopical. To the practitioner Part IV.—over 100 pages—dealing with the group of symptoms associated with, or assumed to be associated with, various forms of disease of the adrenals, will be the most interesting. Here, however, much is obscure, and much remains to be observed clinically and correlated with pathological facts. The authors give an excellent summary of the present state of our knowledge on this obscure subject, in which are introduced such little-known diseases as progeria, the malady of Guinon and Bijou—i.e., hirsutism, sometimes called by the French "syndrome surréno-génital." Unfortunately there is no index and no bibliography. The latter is greatly to be regretted, for the reader is thus merely supplied with names, and is unable to verify the statements or to extend his knowledge by reference to the original memoirs.

The work is a very readable summary of the present state of our knowledge on a subject obviously of great theoretical and practical importance.

Handbuch der Pathogenen Mikro-organismen. Herausgegeben von Dr. W. KOLLE und Dr. A. W. WASSERMANN. Second, revised, edition. 16 Parts. Jena: Gustav Fischer. 1912 and 1913. Price 5 marks each part.

WE have before us a number of new parts of the second edition of this enormous work, and may say without reservation that these parts maintain the high standard set by the earlier numbers. The discussion of the subject of immunity and allied matters is continued, completing the second volume. In the third volume, which is now commenced, the subject of the value in diagnosis of agglutination, bacteriolysis, and the fixation of the complement is considered. In the portion of the fifth volume contained in these parts we have an account of the use of the tuberculins, a description of the organisms causing leprosy, diphtheria, glanders, the soft chancre, and rhinoscleroma. We may also mention a very full account of the bacillus pyocyaneus. Two of the sections contain portions of the seventh volume, which treats of the pathogenic protozoa. The volume begins with a good description of the protozoa in general, and the organisms causing malaria, dysentery, and coast fever are described. A single fasciculus treats of the larger parasitic animals, which are described in the eighth volume; those described here are the bilharzia, ankylostoma, and the trichina. We have said enough to show how fully the subject is treated.

Technique Microscopique, d'après Bohm et Oppel. Par E. DE ROUVILLE. Cinquième édition considérablement augmentée. Paris: Vigot Frères. 1913. Pp. 724. Price 8 francs.

THIS practical, comprehensive, and well-arranged "Taschenbuch," which has reached its seventh edition in German, has already an established reputation. The French edition, "inspired" by the German edition, is the fifth edition now before us. We have compared this edition with the seventh German edition, edited by Oppel, for his co-editor Böhm died in 1912. The French edition takes as its basis the German work, but it does not exactly follow the parent text, which has been altered and added to here and there.

There is an introduction on the microscope, illustrated by figures, and a new chapter on the ultra-microscope. The French, like the German, edition consists of two parts, of which one is general, and deals with the technique, and the other is special, in which the methods applicable to the preparation and examination of the several tissues and organs are considered. In fact, there are almost too many methods to select from. The work possesses all the details of the German edition, but in addition there are added a number of methods that are employed more especially in French laboratories, so that it will be found most comprehensive in its scope. The bibliography also is more extensive than in the German edition in consequence of the introduction of references to the papers more especially of French histologists, but in the main it follows the German "Literatur-Verzeichnis," which extends to over 30 pages. It is rather odd to find both in the German and the French editions the well-known name of Lockhart Clarke appearing as "Lakhart (Clarke) 1857." We would direct attention to the very full account given under "Adipose tissue" of the fats and lipoids.

We have great pleasure in recommending this inclusive compilation of microscopical technique as applied not only to human organs and tissues, but also to those of both the lower and the higher animals. It is a most useful, handy, and up-to-date compendium.

MISCELLANEOUS VOLUMES.

NUMEROUS books for the instruction of laymen reach us for review, of which we can only notice the best and most responsible.

A Medical and Surgical Help for Shipmasters and Officers in the Merchant Navy, including First Aid to the Injured. By W. JOHNSON SMITH, F.R.C.S. Eng. This, the fourth edition, has been revised by Dr. ARNOLD CHAPLIN, Medical Inspector to the Peninsular and Oriental Steam Navigation Company (London: Charles Griffin and Co. 1912. Pp. 355. Price 5*s.* net.).—Recent advances in the knowledge of the causation of diseases, especially of those due to tropical conditions, have led to this revised edition. Portions of the book have been rewritten, and the new scales of drugs and medical and surgical appliances issued by the Board of Trade in January, 1912, have been incorporated, and in some other respects the work has been brought into line with the present-day requirements. The reviser has not felt the necessity of altering the chapter dealing with surgical matters. While it is true that in the greater portion of this section it would be impossible to improve upon the clear descriptions and admirable advice contained therein, it is to be regretted that in the section on first aid to the injured the opportunity of a new edition has not been taken to improve on the treatment of the apparently drowned. There is no word of Schäfer's method of artificial respiration, which may be said to have largely replaced the older methods of resuscitation from drowning. The woodcuts accompanying the description of the methods of performing artificial respiration give to the section a mediæval look; these directions for restoration of the apparently dead and drowned should not be in use by the Navy or in lighthouses and vessels of Trinity House. We have little other criticism to offer. The first chapter, which deals with the preservation of health on board ship, is full of good and sensible advice, which, if it were all acted upon by owners and masters, would certainly reduce the present serious risks to health which are entailed by a seafaring life in close quarters on iron ships. The chapters on the recognition and treatment of disease are full, safe, and accurate, and should be of much assistance to masters in the difficult circumstances in which they are often placed. The book is also an admirable guide to treatment when the disease has been recognised and help sought under the appropriate heading. But how often is not the chief difficulty the diagnosis of a feverish illness? The volume would have been improved by a chapter on the treatment common to all pyrexial disorders ——Dr. A. H. DOTY, who has written a useful little book, *Prompt Aid to the Injured* (London and New York: D. Appleton and Co. 1912. Pp. 229 Price 6*s.* net), was lately Health Officer of the Port of New York. The purpose of this book is to provide instruction for the intelligent layman as to what he should do in cases of accident or injury, and its value is attested by the fact that the work is now in its fifth edition. The writer has made every effort to introduce material of practical importance, not only in connexion with medicine and surgery, but also as regards modern sanitation, so as to make the book of value not only for domestic use but also for use in mining districts, manufactories, and other places where many persons congregate and accidents frequently occur. The elementary characters and functions of the skeleton, joints, muscles, blood, respiratory and other systems of the body are explained in concise and popular terms, and the line of action best suited for rendering first aid in hæmorrhage, fractures, burns, unconsciousness, asphyxia, drowning, poisoning, and suchlike as may from time to time present themselves is detailed. The last two sections of the book deal with hygiene and sanitation, and embody many suitable and useful hints. The book is well got up and there is a good index.

If medical books for laymen are frequent, semi-popular works upon social economy are still more so. Everything that Prince Kropotkin writes is of interest as the work of a man who is transparently honest and wholehearted, if possibly somewhat of a visionary. But most of the great reforms in this world have been set on their way by visionaries. *The Conquest of Bread* (London: Chapman and Hall, Limited. 1913. Pp. 298. Price 1*s.* net.) was first published in 1906, and in it Prince Kropotkin expounds his theory of well-being for all, a much-to-be-desired state which is to be brought about by expropriation and intensive culture. All revolutions, he says, have failed hitherto because the workers could not get enough to eat and the watchword of the future revolution will be "bread for all." Prince Kropotkin's account of the really communistic and anarchistic revolutionary city is quite fascinating in its details, but is at present, it seems to us, Utopian. If all men were as simple, honest, and unselfish as Prince Kropotkin the scheme might be possible. At present, however, the majority of us are far from possessing such characteristics. But at any rate, the world is slowly getting better, although poverty selfishness, and violence are still too much in evidence.——A more hopeful picture is a very bright and charming portrayal in *Halfpenny Alley*, by MARJORY HARDCASTLE (London: Smith, Elder, and Co. 1913. Pp. 239. Price 5*s.* net), of the life led by our less fortunate brethren. It presents the lighter side of the picture of struggle and toil and hardship in the life of east and south-east London, the life with which the inhabitants of the west are for the most part familiar only in the tragic or pathetic events that bring it for a moment to the surface through the newspaper reports. Six years of nursing in east and south-east London have enabled Miss Hardcastle to demonstrate that, gloomy as the picture is in some respects, it has a brighter side which is at least as predominant as it is in the upper world. Indeed, it is likely that the prevailing practice of making the most of small things and of exacting the greatest amount of happiness from the merest trifles places the denizens of these less fortunate regions on quite as high a plane, to say the least, in respect of character as those who seem to have so much more to be thankful for, so much less to endure. As Mr. Alexander Paterson, who writes the introduction, says: "Because streets are a bit narrower, or houses seem dark and untidy, the life within them is often conceived as one of perpetual strain and misery. Too little allowance is made for those many brave joys which even dirt and hunger cannot choke. ...... The streets may be dark, but their very gutters brim with happiness." This book should be read by all who do not live near "Halfpenny Alley" less perhaps that they may learn about its inhabitants than from them.

We may conclude this brief account of many books by some notes on a few works of reference. The third issue of the *Edinburgh University Medical Year-Book, 1913*, by DUNCAN C. L. FITZWILLIAMS, M.D., Ch.M., F.R.C.S. Edin. & Eng. (Edinburgh: The Darien Press. Pp. 254), which made its first appearance in 1911, will be welcomed by Edinburgh students all the world over. It contains much useful and interesting information about the University medical curriculum, and particularly about its post-graduate courses. There is also a list of the Edinburgh resident and non-resident posts open to graduates, with much other University information concerning Fellowships, scholarships, and bursaries, the professorial and Royal Infirmary staffs, the Royal Medical Society, the O.T.C., the Undergraduates' Club, the Women Students' Union, and the Edinburgh Graduates' Clubs in different localities. The alphabetical list of Edinburgh University medical graduates occupies pages 89 to 206, while the local lists complete the volume to p. 254. There are illustrations of the University and portraits of Lister, Annandale, Caird, and Lorrain Smith. Professor F. M. Caird writes a very appreciative account of Lord Lister, while Dr. Fitzwilliams does the same for the late Professor Gibson, and Dr. W. Mair a similar account of Professor Lorrain Smith, who recently succeeded Professor Greenfield in the chair of pathology.——*Burdett's Hospitals and Charities, 1913*, by Sir HENRY BURDETT, K.C.B., K.C.V.O. (London: The Scientific Press, Limited. Pp. 1047. Price 10*s.* net), which is now in its twenty-fourth year of publication, scarcely needs any detailed description. It forms a reliable guide to the *personnel*, finance, equipment, and so forth, of hospitals, medical schools and colleges, nursing and convalescent institutions, sanatoriums, and dispensaries, and contains, besides alphabetical lists of some 6000 institutions, a large amount of information with regard to public charity in the cause of sickness and suffering and the public funds which collect money for hospitals. A chapter is devoted to British hospitals and the National Insurance Act, and in the preface Sir Henry Burdett expresses the conviction that "speaking from an intimate knowledge of facts, we feel justified in saying that the overwhelming majority of opinion among all classes in Great Britain is that the voluntary system of hospitals must be maintained and extended upon wise lines," securing the "continuance of a system of administration which, on the whole, is undoubtedly the most perfect in the world."——The *Social Guide, 1913* (London: Adam and Charles Black. 1913. Pp. 264. Price 2*s.* 6*d.* net), edited by Miss HUGH ADAMS and EDITH A. BROWNE, is now in its fourth year. It gives a great deal of information, in alphabetical order, about the public social functions and social societies in London, including provincial and county associations, with financial, dress, and other regulations. We suppose the International Medical Congress, which meets this year in London, is considered too professional for inclusion, yet the social element will be as prominent here as it is at the British Association, which is included; while the cure resorts, British and foreign, to which paragraphs are devoted, still manage to retain more than a vestige of professionalism, in spite of the dominance of fashion. We should also have thought the Imperial Services Exhibition quite as worthy of mention as the skating rinks. The fact that the *Guide* is not published until May renders reference to the Oxford and Cambridge boat race, the Chelsea Arts' Club ball (February), St. Patrick's Day, and some other events, belated. However, the book is a useful one.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received from the Drapers' Company a promise of £500 towards the rebuilding fund for the current year and of a similar amount for 1914. A bed will be endowed in the name of the company.—Among others, the following bequests have been made under the will of the late Mr. Alfred Hugh Harman, of Haslemere. The freeholds on the Southville Park Estate, Dulwich, S.E., for the use of King Edward's Hospital Fund for London; to the Three Counties Nursing Association, Shottermill, Surrey, £1000 Debentures of Drummond Brothers (Limited), and shares in the Associated Portland Cement Company (Limited), the Grayshott Refreshment Association (Limited), and Messrs. Chapman, Lowry, and Puttock (Limited); to the Haslemere Cottage Hospital £1000 Debentures, together with Preference shares in Drummond Brothers (Limited); £5000 each to Dr. Barnardo's Homes and the City of London Hospital for Diseases of the Chest; £2000 to the British Home for Incurables, Streatham; and £1000 each to the After-Care Association, the Royal Association in aid of the Deaf and Dumb, and St. John's Hospital, Leicester-square.

THE LANCET.

LONDON: SATURDAY, JULY 5, 1913.

"Sensitised" Vaccines.

It is common knowledge that after recovery from certain infections the infected organism may acquire immunity from a subsequent infection by the same virus. That such protection can be artificially conferred on animals and human beings by means of vaccination was demonstrated by Jenner and Pasteur. Vaccination against small-pox still occupies a fore-place in the domain of protective active immunisation in that not only is a high degree of immunity thus artificially produced, but this state persists for a number of years; further, the actual vaccination is attended by but ephemeral discomfort and is certainly, under ideal conditions, devoid of risk. The wider application of active immunisation to the prophylaxis of infective diseases has been the goal of many latter-day scientific researches, and, indeed, these attempts have not been wanting in success. The prophylactic inoculations with killed cultures (vaccines) of typhoid and plague bacilli have led to a notable diminution in the case incidence and mortality amongst the inoculated. The basis of such inoculations is founded on well-studied scientific facts, for the elaboration of specific protective substances in the blood, directly resulting from such inoculations, can be actually demonstrated and measured. It cannot, however, be gainsaid that the inoculation of both typhoid and plague vaccine is attended in many cases by reactions of some severity, that during the initial stages of the immunising process the inoculated individual is more prone to infection, and that the immunity conferred only lasts for a variable period. Further, it must be granted that the number of infections against which such protective inoculations are effective is limited. Ehrlich and Morgenroth have shown that if bacteria are brought into contact, at body temperature, with a serum containing specific antibodies, the bacteria unite with their own specific antibody and with this antibody alone. In such a mixture of bacteria and serum containing specific antibody, the bacteria thus "sensitised" can be readily separated from the serum by centrifuging. Now, it occurred to Besredka to inquire whether such "sensitised" bacteria could be used with advantage as immunising vaccines. Applying himself to the study of prophylactic inoculation against typhoid fever, Besredka showed that animals inoculated with "sensitised" typhoid vaccine acquired a high degree of immunity without exhibiting any signs of a local or general reaction, and that the immunity supervened very rapidly and lasted for a considerable time. Besredka concluded from his researches, which have received confirmation at the hands of Marie, Remlinger, Dopter, and Theobald-Smith, that the "sensitising" of bacteria in this way conferred new properties on them which rendered them fully effective and inoffensive as vaccines, the resulting immunity being certain, rapid, and lasting.

A further development of Besredka's researches was realised when he and Metchnikoff contemplated the possibility of immunising anthropoid apes against typhoid. These apes are very susceptible to typhoid infection, and Metchnikoff and Besredka were unable to protect them against an infecting dose by vaccination with dead bacilli (vaccines) or extracts of bacilli. But, by using "sensitised" *living* bacteria they succeeded in protecting the apes against a lethal dose and were able to show that the introduction of such living "sensitised" bacteria was not only harmless, but that all febrile and even local reactions were thus avoided; and yet the immunity conferred was experimentally undeniable. It is not surprising that a number of individuals have devoted themselves to the further study of this method of active immunisation both in its application to prophylaxis and also to therapeutics. In the continental medical literature a number of encouraging reports have been published on the value of the method in the preventive and curative treatment of plague, cholera, typhoid, dysentery, streptococcal and pneumococcal infections, tuberculosis, rabies, and poliomyelitis. A notable contribution to this aspect of the treatment of certain bacterial infections was afforded by the interesting paper published in The Lancet of June 28th by Dr. M. H. Gordon. Dr. Gordon pointed out the disadvantages of the ordinary specific methods of treatment by immune serums and vaccines respectively. Immune serums not only sometimes give rise to anaphylactic shock or serum sickness, but also with certain notable exceptions they have proved disappointing in practice, while with vaccines the well-known negative phase constitutes a risk which is by no means negligible in some cases. It appears to be established that the sensitisation of vaccines by the method of Besredka marks a notable advance in the specific therapy of infective diseases. The method was first introduced by him as long ago as 1902, and in the interval which has now elapsed a mass of evidence has accumulated which demonstrates that sensitised vaccines can actually save the life of an animal which has been infected with a fatal dose of the corresponding micro-organism. It has also been established that the process of sensitisation diminishes the toxicity of a vaccine without lessening its immunising properties; indeed, it would appear that if adequate doses are given at proper intervals the production of immunity is accelerated, and that there is no negative phase or diminution in the animal's specific resistance. At first sight it would appear almost paradoxical that a vaccine treated with immune serum should at the same time be made less toxic and more active. The explanation offered is that during sensitisation the bacteria become coated with agglutinin and opsonin, and that, therefore, when injected they are more readily taken up by cells such as the polymorphonuclear leucocytes, in which they undergo lysis, so that their endotoxins are set free in a manner specially favourable for the production of antibodies.

Dr. Gordon gave brief records of a number of cases of streptococcal infection treated by means of sensitised vaccines, and, as can be seen from his careful summary of his results, they are such as to be distinctly encouraging. He suggested that the method may have a great future, not only as a scheme of treatment of infections already established, but as a prophylactic agent in epidemics. His paper should be read by all who are anxious to keep in touch with the advances in the specific treatment of bacterial infections.

The Cumulative Character of the Evidence for Vaccination.

IT may be remembered by our readers, for we notified the fact at the time, that the Upper House of the Manx Legislature, to which a measure for the admission of conscientious objection to vaccination had been sent up from the Lower House, after hearing witnesses on both sides, without a dissentient threw out the Bill. It is a significant thing that, whatever action has been adopted on grounds of policy, in every case in which a body representing official or governmental authorities has taken evidence concerning the value and efficacy of vaccination—whether our House of Commons in 1802, the Danish Legislature in 1804, the Royal College of Physicians of London in 1807, the German Vaccination Commission in 1886, the Royal Commission on Vaccination in 1896, the Manx Legislative Council in 1913—the report of that body has been favourable thereto. And now to this list must be added yet another, that of the Pennsylvania State Medical Commission, appointed in June, 1911, whose report has recently been issued. The scope of the investigation was a very wide one. It included an inquiry into the history, nature, and pathology of small-pox, the means that can be used for diminishing the prevalence of and mortality therefrom, the history, nature, and pathology of vaccination, the original sources from which the various strains of vaccine now in use have been obtained, the methods of procuring, sterilising, preserving, storing, and distributing the vaccine, the veterinary inspection of the animals used in its production, the effect of vaccination on the mortality from small-pox, the objections to vaccination based on alleged injurious effects and the investigation of specific instances of death or other serious injury adduced as being due to vaccination, the existing Acts, statutes, and legal decisions governing vaccination and the preparation and sale of vaccine, with a consideration of any objections raised thereto. The Commission was composed of two scientific men holding the accepted views concerning vaccination—viz., Professor WILLIAM H. WELCH, of Johns Hopkins University, Baltimore, and Professor JAY SCHAMBERG, of Philadelphia; two antivaccinationists—viz., JOHN PITCAIRN, President of the Antivaccination League of America, and PORTER F. COPE, its secretary, neither of them medical men; and three neutrals—viz., M. EMIL ROSENBERGER, attorney-at-law, Mr. HENRY C. LIPPINCOTT, life insurance company manager, and Mr. EDWARD A. WOODS, president of an insurance agency.

As the report is lengthy, the signatories summarise their conclusions on the evidence as follows: 1. The protective power of vaccination against small-pox has been conclusively established. Successful vaccination protects against small-pox for a period averaging seven to ten years. Protection may be renewed on the exhaustion of the immunity by a second vaccination. Persons twice successfully vaccinated are usually immune against small-pox for life. Persons vaccinated in infancy but not revaccinated, on contracting small-pox in later life have in the aggregate less severe and fatal attacks than unvaccinated persons. 2. Vaccination is a relatively harmless procedure, serious vaccinal injuries constituting but a minute fractional percentage, and being nearly all the result of preventible secondary infections. Vaccination is safer now than ever before. The use of glycerinated lymph in sealed capillary tubes is a distinct advance. Examination is thoroughly performed in America. The number of alleged vaccinal injuries has been greatly over-estimated. 3. There is no available substitute for vaccination in the prevention and suppression of small-pox epidemics. 4. The legal school age offers an opportunity of establishing official supervision over the vaccinal condition of the people and applying its benefits. 5. This report is in harmony with the reports of all the official and Governmental Commissions that have considered this subject. The medical witnesses who testified before the Commission in favour of vaccination numbered 25, and were mostly men of acknowledged professional pre-eminence and of wide experience and opportunity for observing practically the effect of vaccination. The antivaccination medical witnesses were five in number, and included Dr. CHARLES CREIGHTON, the well-known English historian of mediæval diseases, three medical practitioners, and a homœopathic physician who is honorary vice-president of the Antivaccination League of America. It goes, of course, without saying that the two antivaccinationists did not sign the report, but there *is* a long dissenting report by Mr. PITCAIRN, which *is* assented to in a few words by Mr. COPE, the other antivaccinationist. What is perhaps a little more surprising is that one of the neutrals, Mr. LIPPINCOTT, who is manager of the Penn Mutual Life Insurance Company of Philadelphia, also issues a dissenting report. His dissent is, however, of a conservative order, and temperately expressed. It amounts rather to a verdict of not proven as regards the benefits of vaccination than to one of "guilty" of the charges alleged against it. It is, moreover, more than fully offset by the remarkable note appended to the report by the other two neutrals, one of them by professional training presumably specially fitted to appraise the value of evidence, which states that "they entered upon the performance of their duties with open minds, wholly free from any preconceived ideas or opinions upon the subjects of the reference, and they are convinced that the efficacy of vaccination and its relative harmlessness are so clearly established by the evidence that, in their judgment, not only is no other conclusion possible than as set forth in the report, but it would be difficult to more strongly and conclusively prove any fact of medicine or other science."

An important point is made in the fact that for the 20 years from 1889 to 1908 "England and Wales had actually seven and a half times the small-pox mortality of Germany, and proportionate to the population over thirteen times," in spite of the facts that England is distinctly in advance of Germany in the matter of general sanitation, as evidenced by the fact that her general death-rate always has been, and still is, considerably lower; that the special sanitary measures for the suppression of small-pox—viz., notification, isolation, quarantine of contacts, and disinfection—are more rigorously carried out in England than in Germany, and that England, by her insular isolation, enjoys a great advantage over Germany, which is bordered by several countries in which small-pox is almost always present. The Commission says: "From a consideration of all the available data the only reasonable solution of the question is that Germany has more rigid and better administered vaccination requirements."

It is satisfactory to know that English and American scientific belief is practically similar with regard to vaccination, and a confirmatory instance of the comparative prophylactic value of vaccination and sanitary measures comes to hand in a special small-pox report from Poplar. It may be remembered that in the small-pox epidemic there in 1901-02 an attempt was made to carry out as thoroughly as possible preventive measures in a practical manner as recommended by the Royal Commission in answer to the following question concerning which it was called on to report—viz., What means, other than vaccination, can be used for diminishing the prevalence of small-pox; and how far such means can be relied on in place of vaccination? From experience of that epidemic it was found that although the maintenance of contacts was thoroughly carried out on the part of the department there was great difficulty in effecting their complete isolation, for they were not only visited by friends, but went out at night and often to places of amusement. That epidemic lasted from Dec. 4th, 1901, to Sept. 12th, 1902, and cost upwards of £1500. There were 410 infected premises, and entire maintenance was carried out in 224 houses. Isolation without vaccination implies shutting up the occupiers of houses for 14 days, and this quarantine has to begin again with every fresh case that develops among them, so that during this epidemic in some cases the occupiers of certain houses had to be isolated and maintained for over two months. The report of this epidemic should be read as a preface to the special report appearing now. On May 1st, 1913, the medical officer of health of Poplar found a woman, aged 34, unvaccinated, suffering from small-pox in Naval-row. The rash had appeared on April 29th. The woman was at once removed to the small-pox hospital. The tenant landlady and her three children were revaccinated and the children were excluded from school. Visitors in the house at the time were revaccinated, and the eldest daughter was kept from her work in the City, watch being kept by the medical officers of health of West Ham, Shoreditch (whence the original case was imported), and the City of London over the visiting contacts and their environment. The clothes of the inmates of the affected house were disinfected, as also was the house itself, but the children of the family played in the recreation-ground and the other members of the family were in no way isolated. But no further cases occurred. The medical officer of health for Poplar expresses the opinion that "a person who has been in contact with a small-pox case and is immediately vaccinated or revaccinated, and has had his or her clothing disinfected, is absolutely of no danger to the public."

The General Medical Council and the Administration of the National Insurance Act.

SIR DONALD MACALISTER, at the instance of the Executive Committee and of the National Insurance Act Committee of the General Medical Council, has been in communication with SIR ROBERT MORANT, the Chairman of the National Health Insurance Commission, upon certain important professional points which have arisen in the working of the Act. In the first place, the President of the General Medical Council has brought to the attention of the Commissioners the resolutions which have from time to time been adopted by the Council in respect of certain forms of professional misconduct. This has been done with the intent that the Commissioners may call the special attention of Insurance Committees, Local Medical Committees, and Approved Societies and Institutions to the matter. As far back as June 6th, 1899, the Council published a notice warning the profession "that the Council strongly disapproves of medical practitioners associating themselves with Medical Aid Associations which systematically practise canvassing and advertising for the purpose of procuring patients." Again, on Dec. 1st, 1905, a notice was published by the Council warning all registered medical practitioners against the issue on their own initiative of objectionable advertisements, and against the employment of agents or canvassers to the detriment of other practitioners. Both these warnings are still operative, and it is right that the National Insurance Commission should take official cognisance of them, and should see that those in charge of the administration of the Act do nothing to betray the medical practitioners with whom they are in coöperation into professional error.

The second point of importance which has been the subject of communication between the National Insurance Commission and the General Medical Council is the possibility of the violation of professional confidence being required from medical men assisting in the administration of the Act. SIR DONALD MACALISTER has brought to the knowledge of the National Insurance Commissioners that a number of communications have been received by the General Medical Council from different parts of the country alleging that certain societies and other bodies concerned in the administration of the Act are demanding that medical practitioners shall furnish certificates disclosing the precise nature of the illness of their insured patients, such declaration involving a breach of professional confidence as between patient and practitioner. The chairman of the National Health Insurance Commission has stated in reply that he does not consider that the breach of professional confidence really exists, as the medical certificate is given to the patient and not to the Societies or Institutions, adding, however, that the Commissioners have reason to believe that the Societies will assent to the adoption of a uniform wording for certificates, which, by bringing out the point that the certificate is a confidential document given by the practitioner to a patient, will tend to avoid the kind of misapprehension which has occurred. The General Medical Council has done good service in bringing these matters to the attention of the National Health Commission. It is inevitable, especially in this early stage, that the professional position of medical men should be misunderstood by many of the laymen in whose hands the administration of the Act lies. We are particularly glad to note that the confidential nature of medical certificates is to be further insisted upon, for although it may be the literal truth that the certificate *is given by the practitioner to a* patient, it is the practical truth that such a certificate is not much good unless its contents are disclosed to others. The delicate nature of the trust imposed in this way on those others cannot be too clearly realised.

Annotations.

"Ne quid nimis."

THE PRESERVATION OF THE CRYSTAL PALACE.

No organism can maintain its health unless the vital functions of alimentation, excretion, and respiration be adequately performed. A complete failure of any one of them must result in death; any serious interference with it must lead to invalidism. A city is an organism. Stop all circulation in its streets, prevent the bringing in of supplies, the removal of excreta, or block up its breathing apparatus, and ill-health must ensue. Open spaces have well been called the lungs of cities. In the past our towns have grown up in haphazard fashion, and inadequate or no provision has been made for breathing organs. Growth has necessarily taken place centrifugally, so that the parts towards the centre are becoming daily farther and farther removed from the open country outside. Supinely to acquiesce in further consolidation of such parts of the lungs of a city as still remain capable of exercising their vital functions is a criminal blunder, while citizens may find it easier and less costly to avoid such an error than to remedy it. We join in the plea for the preservation of the Crystal Palace, which, once at the periphery of London, is rapidly becoming hemmed in by the advancing caseation of brick and mortar. It is thus the more imperative to maintain unimpaired its functional activity as a centre of the city's respiration. As London continues to increase, more open spaces will have to be created at an enormous cost. Knowing that, can we foolishly allow those that already exist to be destroyed? Of the £230,000 required to preserve this great breathing-place for London citizens only £140,000 had until recently been collected. An appeal is now being made by the *Times* for the remaining £90,000. Of this sum a "private citizen" has offered to find half a sovereign for every sovereign subscribed, or £30,000 in all, provided the remaining £60,000 is forthcoming before July 31st—480,000 half-crowns from a population of 7¼ millions. It is unthinkable that this appeal should be made in vain, and already a good response has been made.

THE MONEYLENDERS BILL.

Is the medical profession a specially favoured objective for the moneylender's circular? We cannot say that it certainly is, because we must judge by our own post-boxes rather than by those of our neighbours in other callings; but our impression is that the medical practitioner is particularly pestered. Any legislation which aims at the lessening of this nuisance will therefore have the hearty support of our readers. The fact that too many of our number have to keep up appearances upon inadequate means, and the current belief that medical men are unbusinesslike, may account for the persistence with which they are urged to avail themselves of "temporary accommodation on note of hand alone," while the accuracy of the professional directories no doubt helps the moneylender to find his prey and to keep it within his grasp. If Lord Newton's Bill to amend the Moneylenders Acts, which was read for a second time in the House of Lords on Monday last, becomes law, the flood of touting circulars, which has grown so much of late years, will be dried up. This would save weak men in difficulties from one source of temptation, and would lighten the post-bag of those who are already overburdened with unsolicited correspondence. The other two provisions of the Bill are similarly intended to protect the weak and inexperienced from falling ignorantly into the hands of the usurer. One of them would compel the moneylender to give his trade its true name, and the other would compel him to carry on his business under his own name in addition to the one he has assumed. The result would be to bring further into daylight a class which loves obscurity in some directions, while seeking blatant publicity in others, and to remedy what was described by the introducer of the Bill in a merry speech as "one of the greatest curses of modern life." We hope that the House of Commons will find time to pass a measure which has already been assured by the Lord Chancellor of the benevolent attention of the Government.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ON the recommendation of the conservator, Professor A. Keith, it has been decided that the annual exhibition of specimens added to the Museum of the College during the past twelvemonth be continued for three weeks instead of being restricted to the latter days of the week on which the elections of members of Council are held. This arrangement is very advantageous and convenient, as since voting by papers has been granted there is no longer the crowd of Fellows and their friends who used to fill the Museum and the Library on the first Thursday in July. Now that the show of additions will be on view for three weeks and will be held in the Museum and Hall of the College instead of in the Council Chamber, there will be ample time for visitors and students to become acquainted with numerous novelties of interest which otherwise might have been completely overlooked. Mr. Shattock and Mr. Beadles, aided by members of the staff of many hospitals, have arranged not only a large number of additions, but a greater number of specimens already in the collection now classified according to the most advanced ideas. Of the special series, only that illustrating diseases of the female organs has been permanently classified and furnished with a catalogue kept on the shelves of the Museum for public use. But during the past 12 months Mr. Shattock and Mr. Beadles have steadily proceeded with the work of developing the series of general pathology now so conveniently arranged on the ground floor of the Museum. The new and important series of infective processes and diseases, which have been incorporated in general pathology, has occupied much time in its preparation and arrangement, and contains a large number of specimens illustrating diseases caused by micro-organisms and various parasites. It replaces the small group which till recently was placed at the end of the pathological collection. Many pathological preparations associated with cases lately made public have been stored up on the shelves of the Museum since last July. Among them is the skeleton showing progeria contributed by Mr. Hastings Gilford.

Sir B. G. A. Moynihan has sent a specimen of an œsophagus united to the small intestine, the patient surviving the excision of the stomach for nearly four years. A hydrocephalic ancient Egyptian skull is described by Dr. Douglas E. Derry and presented by Professor Flinders Petrie. Mr. A. W. Mayo Robson has presented a collection of gall-stones removed in the first series of operations which he carried out for their extraction. Dr. J. O. Wakelin Barratt has prepared and given to the Museum some models illustrating the process of normal and abnormal division of the nucleus of the cell, which have a direct bearing on the problems relating to cancer. Mr. Albert Carless contributes an instructive preparation representing the pathology of ectopia vesicæ, and other specimens. Under the direction of Mr. Arthur Cheatle, Mr. J. F. Colyer, and Mr. M. S. Mayou, the aural, dental, and ophthalmic collections have been put into excellent order. The surgical instrument series is undergoing rearrangement; at present the only part of the new catalogue which is completed is the descriptive list of obstetric forceps. The loan collection of the Royal Society of Medicine, now arranged in the Museum, includes Baudelocque's own cephalotribe preserved in the original case made for it by Sir Charles Locock. Sir Francis Champneys has presented some interesting old-fashioned instruments, including a trocar made for tapping and simultaneously extracting abdominal cysts, made by Messrs. Mayer and Meltzer, in the early days of ovariotomy for some forgotten designer. Mr. B. H. Walton, through Sir John Tweedy, has given a bag with a set of instruments formerly belonging to Sir William Fergusson. The medico-legal collection has been augmented by a set of cervical vertebræ showing fractures caused by official hangings. The teratological collection is enriched by some curious preparations demonstrating the effects of in and in breeding and the physiology of pseudo-hermaphroditism. Under the superintendence of Professor Keith and the physiological curator, Mr. Burne, the anatomical and physiological series have been enlarged by several unusually fine sets of preparations. Many of the dissections have been made by Mr. William Pearson, who has completed 57 years of service at the Museum, and others by the assistant prosector, Mr. H. C. Wilson, and Mr. Finerty. The conservator's annual report points out what a large number of papers dealing directly with work done or specimens preserved in the Museum have been published since the issue of the last report in 1912.

CHEMICAL ELEMENTS AND THEIR PARENTAGE.

WHILE there has been no sensational event or discovery reported in the chemical world recently, there is one branch of research being patiently pursued which promises to give us something more than a mere "glimpse into the nature of things," judging from the confirmatory evidence which is being obtained in favour of the probability of one element being changed into another by electrical influences. Early in the year some excitement was caused in scientific circles by the announcement that proof had been obtained of the conversion of energy into matter, because in old electric bulbs, which had contained hydrogen, elements were found which had previously not existed in the bulb. Speculation turned upon whether the new gases were the direct products of electric energy or whether they were merely occluded materials expelled from the bulb or whether they were transmutations of hydrogen or aluminium, the material of the electrodes. According to further work upon the subject Professor J. Norman Collie, with Mr. Hubert S. Patterson, find that electrodes are not necessary for the production of neon and helium, for, if a powerful oscillating discharge be passed through a coil of wire wound round a glass bulb containing a little hydrogen, helium with some neon can be detected in the residual hydrogen. Additional refinements were given to the experimental side of the subject with the same result, that is, helium and neon appeared in a thin atmosphere which formerly contained only hydrogen, judging by all the excessive precautions which were taken to exclude the presence of other elements. Hydrogen in considerable quantities can be made to disappear apparently entirely in tubes through which a heavy discharge passes. A gas was also produced in these experiments which showed a carbon spectrum, and there was a suggestion, too, that when copper, platinum, palladium, or magnesium was placed in the electric stream in a vacuum tube containing hydrogen sulphur was produced. In construing these results, it may be observed that preference is being given to the view that there is transmutation of material going on, while there appears to be little belief in the suggestion of there being a creation of matter out of energy. The birth of the atom is evidently not yet a plainly demonstrable fact. All the same, the researches, so far as they have been prosecuted, are yielding sensational results, suggesting the proof of transmutation to be coming. And it is fortunate that the way is now made clear for an exhaustive research on the transmutation of elements by the fact that experiment is open to all who can command the means of utilising powerful cathode discharges. It may be urged that the transmuted products so far apparently obtained are severely microscopic, but that does not detract from the possibility of establishing a principle which may underlie the development of all. Then may come the discovery that the primordial stuff after all is energy; at present such statements are premature.

VOLUNTARY MEDICAL AID IN PEACE AND WAR.

THE need of voluntary aid for the sick and wounded in war, over and beyond that provided in time of peace by the army establishment, was demonstrated in ghastly fashion in the Franco-German war, and most countries have organised such voluntary aid, for without proper organisation developed at leisure only a small part of the possible efficiency would be available. It is useless to shut our eyes to the fact that if not compulsory service of some kind, at any rate a greatly augmented citizen army for home defence will be developed, and measures should be taken now to provide the ancillary aid services for it to an adequate extent. To this end the Red Cross Society and the voluntary aid detachments have adopted the county basis, which is that of our Territorial Force; and this basis also affords the best opportunity for local support. Lady Mackinnon, acting President and Chairman of the City of London Branch of the British Red Cross Society, pointed out in an admirable address at the Imperial Services Exhibition on June 27th how important it is that the necessary financial support should be forthcoming by voluntary contributions, and not through Government grant, for this would inevitably entail increased red tape in the administration, and thus impair flexibility, which is so important an element in efficiency. She pointed out that to support a branch such as that belonging to the City of London only £400 a year—8000 shillings, or 16,000 sixpences —were required for actual working expenses. The utility of the training given by the Red Cross Society is not, of course, confined to war. It becomes increasingly evident in times of peace also. But mere training on "dummies," essential though it is as a basis, is generally insufficient in case of actual casualty. The emotions have to be considered as things that tend to upset the balance of even the most perfect theoretical training, and these emotions are not stirred by bandaging dummy wounded for imaginary accidents. To obtain control of the emotions and surgeons, who should be in a position to understand the methods of anæsthesia employed for their patients. Mr. A. Rendle Short contributes a review of the current theories of surgical shock, and considers the most probable cause of shock to be oligæmia. An account is given of visits to two surgical clinics—to that of Sir William Macewen at Glasgow, and to that of Professor Tuffier in Paris. A valuable and instructive section is that devoted to anonymous reports of mistakes in diagnosis and treatment; it is probable that surgeons will be more ready to record mistakes if they are allowed to do so without the disclosure of their names. A few short notes are given of rare or obscure cases, and a section is devoted to new instruments and appliances, containing in this number an account of a suggested portable operating theatre written by Mr. G. H. Colt. Some reviews conclude the number. It is noticeable that no degrees or other distinctions are appended to the names of the authors of the several papers, though the city of the author is stated. We have said enough to show the value and variety of the contents of this the first number. The journal is a thoroughly good one.

INFANTS' FEEDING BOTTLES IN GERMANY.

THE draft of the Bill regulating the sale of infants' feeding bottles in Germany is extremely brief and consists of three short paragraphs. In the first it is enacted that the manufacture, sale, importation, or stocking of infants' feeding bottles with a glass or indiarubber tube is forbidden, and the same applies to the component parts of such bottles. Infringement of this law will be punished by a fine not exceeding £7 10*s*., or punishment; at the same time the articles may be impounded whether they belong to the culprit or not. If a conviction of certain persons is impossible, seizure of the articles can take place. This law is to be enforced three months after its publication. In the introduction to the Bill it is stated that one-third of all cases of death among infants are due to affections of the digestive tract, and that medical men have declared that feeding bottles with tubes, owing to the difficulty of properly cleaning them, are particularly apt to cause gastro-intestinal disease.

AN ANTINEURITIC SUBSTANCE FROM HORSEFLESH.

IN the May number of the *Bio-Chemical Journal* Mr. E. A. Cooper contributes an interesting paper dealing with the preparation from animal tissues of a substance which cures polyneuritis in birds induced by diets of polished rice. He has prepared from horseflesh a fraction rich in antineuritic substance by precipitating an alcoholic extract of the flesh by means of ether. The ether dissolved the fats and lipoids, leaving undissolved a considerable amount of a white substance. Tested on neuritic pigeons this substance, after continuous washing with ether, brought about complete recovery within 12 hours, using doses of 0·3 gramme (4½ grains). The ether soluble fraction possessed only slight remedial properties. The alcohol soluble fraction was strongly curative in action. On treating this with excess of ether a yellow syrup separated which was completely soluble in water, and doses of 0·2 gramme were sufficient to cure pigeons affected with polyneuritis. From these experiments it is suggested parenthetically that the curative properties of lecithin are due to an antineuritic substance which is not alipoid, but which is present in ordinary lecithin as an impurity readily extractable therefrom by simple methods. The curative substance extracted from horseflesh is insoluble in absolute alcohol, benzine, chloroform, ether, and ethyl acetate, but is moderately soluble in water. The substance is absorbed to some extent by animal charcoal, and is readily destroyed by alkali. It is not inactivated by sulphuretted hydrogen, but disappears in large amounts during chemical operations in which colloidal metallic sulphides are formed. Incidentally it is shown that quinine and cinchonine exert a temporary curative action upon birds affected with polyneuritis. After being treated at 125° C. for six hours, however, quinine has no ameliorative effect, so that its curative properties under these circumstances would appear to be due to its contamination with traces of the antineuritic substance derived from cinchona bark. Apparently alcoholic neuritis does not result from a diminished capacity of the organism to utilise the antineuritic substance, for the administration of small doses of alcohol to birds fed on polished rice does not affect the period of time elapsing before the occurrence of polyneuritis, and so appears not to influence the utilisation of the supply of antineuritic substance distributed in the tissues of birds. These researches are welcome, as it is obvious that the antineuritic substances possess a remarkable physiological significance.

Sir Alfred Pearce Gould has given £1000 to the Middlesex Hospital, with a request that the money should be spent on the purchase of radium to be used for the treatment of patients, especially those suffering from malignant disease. Sir Alfred Pearce Gould by this great generosity has laid the Middlesex Hospital under a further debt to him.

WE regret to announce the death on June 30th, in his seventy-seventh year, of Mr. Alfred Willett, consulting surgeon to St. Bartholomew's Hospital, and formerly vice-president of the Royal College of Surgeons of England. We shall publish an obituary notice in our next issue.

THE Postmaster-General has appointed Dr. J. Sinclair to be Chief Medical Officer to the Post Office in place of Mr. A. H. Wilson, who is retiring under the age limit.

HISTORICAL MEDICAL MUSEUM.

MEDICINE has a history, a history which has touched every phase of life and art. The desire, which within recent years has been growing stronger and stronger for anything that is ancient and curious, has shown itself in medicine; lectureships on the history of medicine have been instituted, and in connexion with the forthcoming International Medical Congress a separate section has been allotted to the subject. A museum is always an integral part in the present day of the teaching of any subject, but in the matter of history, and particularly that of medicine, it is absolutely necessary for historical accuracy to have the concrete evidence which a museum alone can give.

The Historical Medical Museum, which was opened last week by Dr. Norman Moore, President of the Section on the History of Medicine of the Congress, has been organised by Mr. Henry S. Wellcome; it represents the work of some years, which only an enthusiast could have accomplished. The present year, in which the Seventeenth International Congress of Medicine meets in London, has afforded Mr. Wellcome a favourable opportunity of allowing others interested in the subject to study this remarkable collection of rare and curious objects of historical interest connected with medicine and the allied sciences. In this work Mr. Wellcome has had the valuable aid of members of the profession who are likewise deeply interested in the subject, and many in various parts of the world have presented or loaned objects, with the result that a most illustrative collection has been brought together. It is gratifying to learn that the museum has been officially connected with the Congress, and it will thus form the museum of the Section of the History of Medicine; in fact, one might say it will form the important part of that section.

Every effort has been made to arrange the museum on a rational basis, but a glance at the collection will at once convince anybody that the ground covered is so comprehensive as to make the task a difficult one However, an *excellent handbook has been prepared Plans of the museum* will be found on pages 10 and 11 of this handbook, indicating the arrangement of the exhibits on the first and ground floors or basement of 51A, Wigmore street, where the museum is situated Further plans are inserted facing the first page of each section, and showing the general arrangement of that section and also the itinerary in accordance with the sequence of the exhibits described in the handbook This handbook is intended to serve only as a descriptive guide and to indicate the chief features and objects exhibited in the museum

We propose *to refer to some of the more interesting and* striking exhibits On entering the museum we come first to the Hall of Primitive Medicine, which gives an insight into the native medical methods of Africa, Tibet, the islands of the Pacific, and other lands inhabited by primitive peoples, and illustrates graphically the beginnings of medicine There also are various exhibits relating to the development of tropical medicine, with an annexe of parasitology, in which are demonstrated under the microscope specimens of the [illegible] disease Passing through [illegible] medical interest we come [illegible] *re to be found sculptures,* pictures, and other exhibits, illustrative of the healing art and of its development among Oriental, Egyptian, Greco Roman, and other peoples There is a Greek temple modelled after the Temple of Erechtheion in Athens, containing Roman votive offerings of anatomical, pathological, and obstetrical interest, excavated chiefly at the Temple of Æsculapius on the Tiberine Island and from the Temple of Maternity in Capua; statues of Apollo, Asklepios, Hygeia, Ixhlton (the Mexican Little Black Brother, the dei[illegible] of [illegible] Ea[illegible] Th[illegible] ancient surgical instruments, Greek, Roman, Chinese, Native African, mediæval, and others of later times In the galleries are charms, talismans, and amulets, combs and hairpins, spectacles and eyeglasses We then pass on the right into the gallery of pictures, which contains interesting portraits and relics of Edward Jenner, with many other portraits of important personages in the history of medicine, including many British celebrities, Caius, Sydenham, Harvey, Sir Thomas Browne, Mead, Sir Hans Sloane, John Hunter, and others Amongst the pictures attention may be drawn to No 70, described on p 71 of the handbook This interesting oil painting, painted in the sixteenth century, represents a patient being prepared to have his leg amputated By the bedside sits the surgeon, warming the instruments preparatory to operating, while at the foot of the bed is a group of monks praying for the recovery of the patient Entering at the door is the physician From the Gallery of Pictures we pass into the Gallery of Ancient Manuscripts, where are found a collection of medical diplomas from the sixteenth to the eighteenth centuries, many illuminated, and other MSS on medicine from the thirteenth to the eighteenth centuries, with ancient medical documents and MSS, and English, Greek, and Oriental early printed books on medicine

Leaving the first floor, we go downstairs to the ground floor or basement, which has been skilfully utilised for reconstructing actual scenes in medical and surgical practice in ancient times The series begins with a chapel of votive tablets from the seventeenth to the nineteenth centuries chiefly from the church of Santa Maria dei Bagni, Deruta, Perugia. Some of these curious tablets are original and others replicas of offerings for recovery from accidents and disease Annexed to this is a London pharmacy of the eighteenth century The shop front is the original of the pharmacy established in 1798 by John Bell, founder of the Pharmaceutical Society The vases in the interior are of Devonport ware the ointment jars are of Staffordshire stoneware, and the essence bottles of red Venetian glass The laboratory in the rear, in which a pharmacist is at work, contains the actual fittings of a pharmaceutical laboratory of the eighteenth century that once stood in Russell street, Covent Garden, London Next we pass to the shop of John Smith, Apothecarie, at "Ye Sign of ye Wilde Man," in ye Old Bailie, London, 1662 The shop has been carefully reconstructed, and shows John Smith in the dress of the period studying his pharmacopœia Next to the shop of John Smith is the laboratory of an alchemist of the sixteenth century, and then we come to an Italian pharmacy of the same period A barber s surgeon's shop of the Tudor period, with the barber surgeon engaged on some chirurgical treatment, at once carries the spectator back into the sixteenth century The consulting-room of the Pompeian surgery gives an Alma Tadema touch to this part of the museum The furniture and decorations are copied from originals found in Pompeii and Herculaneum and now in the museum, Naples After passing some interesting exhibits relating to the plague we come to scenes reconstructed to show the actual practice in the mediæval hospital at a maternity case In the same gallery are exhibited a collection of parturition chairs One of these, of the eighteenth century, was believed to possess miraculous powers, and was known as "the miraculous chair of Palermo" It was in the possession of a famous family of midwives for three generations, and is estimated to have been used in 2000 cases of delivery.

Before leaving the basement one ought to cast one's eyes up to the ceiling of the front gallery, more particularly in view of the recent criticisms in the press on the complicated nature of the prescription of the present day, and there read the prescription for the making of theriaca This contained no less than 75 ingredients There is also a water colour drawing representing the making of the famous theriaca in Bologna The preparation of this medicament was carried out with much ceremony and solemnity in the presence of the leading officials of the city in the courtyard of the ancient Archiginnasio, the old University of Bologna An attempt was made in the earlier part of the eighteenth century to remov[illegible] but the British public, [illegible] ature of the prescription, [illegible] ell tried *remedy, with the result that the theriaca with some modification* remained in our Pharmacopœia until the year 1788 The copies of the pharmacopœias bearing out these statements are also exhibited

On the ground floor there is also exhibited a collection of instruments of torture and appliances for restraining the insane from the fifteenth to the eighteenth centuries, several of these having been lent by the London Metropolitan Asylums Board

We close with congratulating heartily the Secretary, Mr C J S Thompson, who has studied and arranged the large amount of interesting material that has been gathered from all parts of the globe Considerable artistic taste has been displayed in the setting of the collection This feeling has been carried into the handbook itself, which in addition to the plans to which we have already referred, contains some well executed illustrations That *of Hippocrates facing the title page is taken, we believe,* from a bust in one of our national collections, and the decorative headings throughout the handbook are reduced facsimiles of the friezes especially designed and painted for the Historical Medical Museum

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE (1913)

SECTION OF TROPICAL MEDICINE AND HYGIENE

THE Section of Tropical Medicine and Hygiene, of which the President is Surgeon General Sir David Bruce, A M S, is holding discussions as follows —August 7th Plague; reporters, Professor Dr S Kitasato (Tokyo) Major W Glen Liston, I M S, *and Dr Simond have promised to take* part in the discussion August 8th Beri beri, Professor Dr C Eijkmann (Utrecht), Professor Dr B Nocht (Hamburg), Professor Schaumann, and Mr Funk will take part in the discussion August 9th Sanitary Organisation in the Tropics (jointly with the Section of Naval and Military Medicine), Lieutenant Colonel P Hehir, I M S, Stabsarzt Dr Hintze (Berlin), Professor Sir Ronald Ross, Colonel King, I M S, Professor Plehn, Professor W J Simpson, and Dr Edm Sergent will take part August 11th. Leishmaniasis, Professor A Laveran (Paris), Dr Nattan-Larrier (Paris), and Dr C Nicolle (Tunis). Sir William Leishman will take part in the discussion August 12th. Relapsing Fevers, Dr C Levaditi (Paris) and Professor

F. G. Novy (U.S.A.); a part will be taken in the discussion by Dr. A. Balfour and Dr. Darling.

Papers have been received on the Prevention of Malaria in Troops in India and on Ulcerated and Spongy Gums in Indian Troops, both by Colonel Hehir. The following papers have been promised: Dr. Castellani, Yaws; Captain Craig (U.S.A.), Dengue; Dr. Robert Doerr (Vienna), Phlebotomus Fever; Professor Katsurada (Japan), Schistosomiasis; Dr. van Loghem (Utrecht): (1) on the Yellow Fever Danger for Asia after the Opening of the Panama Canal; and (2) the Difference between Vibrio Cholera and Vibrio el Tor; Dr. J. W. W. Stephens (Liverpool), Blackwater Fever; Professor Th. von Wasielewski, Zur Kenntnis der Halteridienkrankheit der Vögel, mit Demonstration.

The section will meet in the Physical Chemistry Theatre on the ground floor of the Imperial College of Science. An epidiascope will be available for demonstration at the sittings. The details for the sectional entertainments are not yet completed; they will include visits to the London Tropical School and probably to the Liverpool Tropical School. A dinner will be held.

The secretary is Dr. A. W. G. Bagshawe, Imperial Institute, London.

SECTION OF PSYCHIATRY.

The meetings of this section are to be held in the Chemical Library of the Imperial College of Science and Technology, South Kensington.

The following are the discussions arranged and the names of reporters:—Thursday, August 7th: The Psychiatric Clinique, its Aims (Educational and Therapeutic) and the Results Obtained in Respect to Promotion of Recovery; reporters, Dr. Adolf Meyer (Baltimore, U.S.A.) and Professor Dr. Sommer (Giessen). Friday, August 8th: Psycho-Analysis; reporters, Professor P. Janet (Paris) and Dr. Karl Jung (Küsnach-Zürich). Saturday, August 9th: The Psychoses of Infection and Auto-intoxication; reporter, Ghr. Professor Dr. K. Bonhöffer (Breslau). Monday, August 11th: The Syphilitic and the Parasyphilitic Insanities; reporters, Professor Dr. W. v. Bechterev (St. Petersburg) and Dr. A. Marie (Villejuif). Tuesday, August 12th: The Psychology of Crime (jointly with Section of Forensic Medicine); reporters, Professor Comm. E. Morselli (Genoa) and Professor W. Weygandt (Friedrichsberg, Hamburg).

The afternoon meeting on Saturday, August 9th, will be held at Claybury Asylum, when a pathological demonstration will be given by Dr. F.W. Mott; and Dr. Robert Jones will show the members of the Congress round Claybury Asylum.

Dr. E. Goodall, of the Mental Hospital, Cardiff, has undertaken the arrangements of the museum specimens for this section, and is working with Dr. H. W. Armit, who is responsible for the management of the general museum of the Congress. Arrangements have been made for showing the plans of several of the London county asylums. Facilities will be given for members to visit Bethlem Royal Hospital, the London County Council Asylums, Darenth colony for mentally afflicted persons, and Holloway Sanatorium, Virginia Water.

Entertainments.—A garden party has been arranged by the kindness of the governors of Bethlem Royal Hospital on Thursday, August 7th, the number of guests being limited to 500. Those desirous of attending should apply early for tickets. Those who wish will have an opportunity of visiting the wards of this ancient and Royal hospital for the insane.

The sectional dinner will take place on Thursday, August 7th, at the Imperial Restaurant, Regent-street. Those desirous of attending should apply for tickets as early as possible. The price of the dinner will be 7*s.* 6*d.*, exclusive of wine. Each member is expected to pay for his own dinner and that of any guest he may invite.

The Lord Mayor of Cardiff has most kindly issued an invitation to lunch to those members of the section desirous of visiting the Cardiff Mental Hospital. As this will mean a whole day excursion from London, the date has been fixed for Wednesday, August 13th, the day following the closing of the Congress. For those who have time, we should strongly advise the acceptance of this invitation. This mental hospital is thoroughly worth a visit, as it is one of the latest and most completely equipped mental hospitals in the country. Those who desire to go are requested to apply for tickets as soon as possible in order that the Lord Mayor may have time to arrange for the luncheon, &c.

The president of the section is Sir James Crichton Browne, and the acting secretaries, Dr. Maurice Craig, 54, Welbeck-street, W., and Dr. Percy Smith, 36, Queen Anne-street, W.

THE SEVENTH REPORT ON PLAGUE INVESTIGATIONS IN INDIA.[1]

THE Advisory Committee appointed jointly by the Secretary of State for India, the Royal Society, and the Lister Institute have recently issued their seventh report in the form of "Plague Supplement II." to the *Journal of Hygiene.* It is generally recognised that the work done under the direction of this Advisory Committee has contributed largely to establishing the modern etiology of bubonic plague upon a scientific basis. The present report contains 16 separate articles dealing mainly with experimental researches which throw considerable light upon many of the outstanding problems associated with the disease, its causes, prevention, and treatment. Below we give a brief summary of the papers comprised in the report.

Plague in Madras City.

The apparent immunity of this city from plague was investigated, and the conclusion arrived at was that the conditions of house construction in Madras were not unfavourable to the establishment of epidemic plague, and that suitable climatic conditions for the spread of the disease prevail during the winter months. Further inquiries are being carried out in certain districts of the Madras Presidency. In THE LANCET of March 22nd, p. 841, we discussed this question from various standpoints.

Statistics of the Occurrence of Plague in Man and Rats in Bombay, 1907 to 1911.

During the five years 24,784 persons died from plague in Bombay, and in the same period 563,784 rats were submitted for examination, 75,605 of them being found infected; of these infected animals, 60,614 were Mus decumanus and 14,991 Mus rattus. The fact that the first-mentioned variety of rat suffered more from plague than the other is said to be due to the greater infestation of the former by fleas, double the number of these parasites being found on M. decumanus as compared with M. rattus. The plague epidemic in Bombay begins in M. decumanus a little earlier than in M. rattus, and shortly afterwards the human epidemic begins.

The Distribution of the White-bellied Mus Rattus in Bombay.

The white-bellied M. rattus, commonly known as M. alexandrinus, is found on Bombay island, and its proportion to the total rats examined was found to be 8 per 1000; but this proportion varied from 1 per 1000 in the densely populated districts to 26 per 1000 in less crowded areas.

The Immunity of the Wild Rat of India.

Rats from different localities show varying degrees of immunity to plague; and this is relative to the infecting dose of the virus. Immunity is greatest in places which have suffered more severely from plague; it is less marked in those places which have suffered to a moderate extent, and least of all in those places where epidemic plague has not occurred. This immunity is not always acquired from an attack of plague, and it is transmitted by the parents to their offspring which have not been exposed to infection. Young rats are more susceptible than older animals, the dose being the same for all weights.

Chronic or Resolving Plague.

From a series of careful observations made on rats it was concluded that lesions, termed by the committee "resolving and resolved," are found in rats which have been subjected to plague infection, and in certain individuals these lesions are stages in the natural process of recovery from the acute form of the disease. These lesions are different from those found in the acute stages of plague; they are generally localised and confined mostly to the spleen. It is not always possible to prove that these lesions are due to the plague bacillus by isolating that bacillus from them, for in many cases the bacilli have been killed, have disappeared, or have been replaced by some other organism. That the lesions are frequently produced by the plague bacillus has been shown by (*a*) demonstrating the presence of plague bacilli in some of the lesions which exactly resemble others either in the same rat or in other rats in which no plague bacilli could be found, and (*b*) by the fact that the lesions increase in numbers during and after epizootics of the disease. Nevertheless, it must be borne in mind that very similar lesions can be produced by other causes, as has been proved by the experience of the examination of rats in Madras city where the disease was not present.

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[1] The Seventh Report on Plague Investigations in India. Journal of Hygiene. Plague Supplement II. Cambridge University Press. Price 7*s.* net.

The Experimental Production of Resolving Plague and Post-Plague Lesions in Rats.

Of 1079 rats which had survived inoculation with plague, and which were killed three weeks later, it was found that 11 per cent. showed resolving or resolved plague lesions. The largest proportion of these lesions were found in the *survivors of the most susceptible rats. For example, all of* the 1000 Madras rats died after inoculation save 18, and nine of these bore signs of having passed through an attack of plague. The converse holds true, for in five only of 160 Poona rats which survived inoculation out of 300 tested were plague lesions present.

Experimental Plague Epidemics among Rats.

The results of fresh experiments on this subject confirm those already published regarding the spread of plague from infected rodents to their healthy companions through the agency of fleas. Generally, the proportion of rats contracting plague varied with the number of fleas present. As regards the mortality in the different epizootics, it appears that the flea prevalence and the degree of septicæmia developing in the infected rats were the chief influences which operated.

Observations on Flea-breeding in Poona.

These observations indicated that the laying of eggs by wild fleas, the development of the eggs into larvæ, and the transformation of larvæ into pupæ and imagines all showed a marked seasonal variation, being most active when the weather was wet and the temperature moderate, and being least active under hot and dry conditions. Within the range of temperature obtaining in Poona atmospheric humidity seemed to be a more important factor than temperature in affecting the seasonal variation. Artificial humidification of the atmosphere is favourable to all stages of the metamorphosis, especially in the dry season. The seasonal variations in the results of artificial breeding correspond in time to the seasonal variations in the prevalence of fleas on rats in nature. The life of an adult flea is longer in a cool and moist atmosphere than under hot and dry conditions.

The Serum Treatment of Human Plague.

A series of observations were made at the Maratha Plague Hospital, Bombay, on the serum treatment of plague from 1908 to 1911. As a result, it seems probable that the administration of the two available sera (Yersin's and antitoxic serum from horses injected with the nucleoprotein of the plague bacillus) is not a practicable means of bringing about any material diminution in the mortality from plague in India.

Some Special Experimental Researches.

Some special experimental researches were carried out by Dr. Sydney Rowland, of the Lister Institute; they included an attempt to separate the antigen from the nucleoprotein of the plague bacillus by filtration through gelatin, but the attempt was not successful. Besredka's method of vaccination was also investigated to determine the toxicity of a "whole" vaccine prepared according to Besredka's method, and also to ascertain the amount of endotoxin that could be extracted from plague bacilli before and after soaking (sensitising) in antiserum. The relation of pseudo-tubercle to plague as evidenced by vaccination experiments was also [illegible] Dr. [illegible] Observations, too, were made [illegible], including the [illegible] rats, and the [illegible] Whatever the mechanism, the same toxin that is capable of provoking the formation of antitoxin in the horse is capable of neutralising it in the immune serum of this animal, while when it is injected into rats it provokes an immunity to infection with the living organism, the essential features of which seem to be resident in the serum of this animal, and to be in turn capable of being neutralised by the endotoxin. The onset and duration of the immunity consequent on the inoculation of plague nucleoprotein were also made the subject of investigation by this observer.

The Opsonic Index.

The opsonic index in plague vaccination was inquired into by Dr. Ralph St. John Brooks, who attempted to correlate the production of immunity in rats vaccinated against plague with the production of immune opsonin in the serum of such animals. The substance producing a rise in the opsonic index in immune plague serum is the nucleoprotein contained in the bodies of the bacilli; but the washed bodies of the bacilli when used as a vaccine do not cause any increase in the opsonic index. Within limits the larger the dose the greater the opsonic response. A second dose of vaccine raises the index above the maximum of the first inoculation even after the curve has fallen to its normal level. In the early stages, *in rats, the opsonic response and the degree of* protection aroused rise together. In human beings the maximum response is observed to be much later than in the case of laboratory rats, and the response in a series of previously vaccinated persons is somewhat greater than in a series of persons not previously vaccinated. The local and constitutional effects of nucleoprotein vaccination compare very favourably with those observed in other methods of protective inoculation.

The Preparation of Antitoxic Plague Sera.

The preparation of antitoxic plague sera was reported upon by Dr. A. T. MacConkey, the bacteriologist in charge of the serum department of the Lister Institute, who carried out a series of experiments in connexion therewith. From these he concluded that it was possible to obtain a plague antitoxic serum by means of injections of toxin obtained from the plague bacillus by Rowland's sulphate process. In an immunised horse a better response is obtained as regards antitoxin production if an old weakened toxin is used instead of a fresh toxin. Plague serum retains its antitoxic properties for months unimpaired. Heating at 56° C. for half an hour on each of three successive days has no effect on the antitoxin. Plague antitoxin may be concentrated by the same process that is used for concentrating diphtheria antitoxin.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are among the amounts received at the Mansion House. Total up to date about £45,000.

	£	s.	d.
St. Michael's, Chester-square	671	0	0
[illegible]	127	0	0
[illegible]	103	0	0
[illegible]	100	0	0
[illegible]t, with Chapel of Ease and Mission	96	0	0
All Saints, Margaret-street	91	0	0
St. [illegible] with All Saints'	79	0	0
[illegible]	78	0	0
[illegible]	74	0	0
[illegible]	72	0	0
[illegible]	62	0	0
[illegible]	58	0	0
[illegible]	55	0	0
[illegible]	51	0	0
[illegible]	50	0	0
St. John's, Bromley, Kent	49	0	0
St. Peter's, Ealing	44	0	0
[illegible]	37	0	0
[illegible]	37	0	0
[illegible]	35	0	0
[illegible]	35	0	0
St. Paul's, Harringay	32	0	0
[illegible] Church, Bromley	32	0	0
[illegible]	31	0	0
[illegible]	31	0	0
[illegible]	26	0	0
[illegible]	26	0	0
[illegible]	23	0	0
[illegible]	23	0	0
[illegible]	23	0	0
[illegible]	22	0	0
[illegible]	21	0	0
[illegible]	21	0	0
[illegible]	21	0	0
[illegible]	20	0	0
[illegible]	20	0	0

EPSOM COLLEGE.

THE annual general meeting of the governors of Epsom College was held at the office, 37, Soho-square, London, W., on Friday, June 27th. The treasurer, Sir HENRY MORRIS, presided, and was supported by Mr. J. Paul Bush, Sir Francis Champneys, Sir William Church, Dr. William Collier, Dr. Clement Godson, Dr. F. de Havilland Hall, Mr. Horace E. Haynes, Mr. H. E. H. Matthews, Mr. John H. Morgan, Mr. W. A. Propert, Mr. Purnell Purnell, Sir James Reid, Dr. St.Clair B. Shadwell, Surgeon-General Sir Lionel D. Spencer, I.M.S. (retired), Dr. Septimus Sunderland, Dr. Frederick Taylor, and other governors.

The SECRETARY read the scrutineers' report as to the successful candidates for pensionerships, foundation scholarships, and an annuitant as follows :—

Pensionerships.

	Votes.
Simpson, Maria	6,567
Stickland, Clara	5,642

Foundation Scholarships.

Smyth, Samuel D.	13,149
Woodhouse, James Y.	7,410
Clarke-Baylis, Walter E. H.	7,328
Gillam, Geoffrey G.	6,701
Alexander, John V.	5,527
Hare, Kempton P.	5,324
Simmons, John W.	5,234
Blake, Edgar V. M.	5,182
Thyne, William	4,726
Hickling, John W. T.	4,703

Susan Harriette Tait Annuitant.

Black, Maud M.	4,581

In proposing that the report of the Council to the governors for the past year be received and adopted, Sir Henry Morris emphasised the fact that new subscriptions and donations were urgently needed as there had been a slight decrease in the number of donors and subscribers during the past year. He referred to the possibility of contributions being diverted to another medical charity for which they all had the greatest sympathy, in consequence of its having assumed the prefix "Royal," thus causing its title to approximate to that by which the College was known for 50 years—namely, the "Royal Medical Benevolent College." He stated that it might be necessary for the Council to take steps in the near future to emphasise the fact that the Royal Medical Foundation attached to the College has, as its special object, the provision of 50 pensions of £30 a year each for necessitous members, or widows of members, of the medical profession, and a high-class education, together with board, clothing, and pocket money, for 50 necessitous sons of medical men. In commenting on the expenditure of the sum of £6,232 14*s.* 6*d.* on structural alterations and extensions at the College, he remarked that as the College had been built 60 years, and was in an exposed situation on the Downs, it was natural that the cost of maintaining the buildings in good condition should be high, apart from the increased accommodation needed as a result of the extension of the methods of education, and the rapid growth of the numbers in the school. In 1904 there were 227 boys, in 1908 the number had increased to 264, whilst there had been a steady slight increase from year to year until last year, when the number reached 294. One could not visit the College and inspect the teaching arrangements without coming to the conclusion that the educational work of the College is of a highly satisfactory standard. It was impossible for boys to have a better education than that provided on both the classical and modern sides. He referred to the fact that extraordinary expense again has to be incurred, as the chapel spire is in a dangerous condition, and during the gales which were prevalent in March and April the lower school gymnasium was completely blown down. Furthermore, it would soon be necessary to extend the accommodation in the College chapel, and he was looking forward to the time when an isolation block for infectious cases could be provided, as well as a pavilion for the playing fields, worthy of the College and its position amongst the great secondary schools of England. In conclusion, he said that the profession might well be proud of Epsom College, and that the subscribers and donors could rest assured that their contributions would be expended to the best possible advantage.

The report stated that the general work of the College and the discipline had, as usual, been satisfactory; that cricket, football, and hockey had been played with vigour and success; and that the various school institutions were in a flourishing condition. Last year there were over 150 members in the Officers' Training Corps, of whom 5 passed the examination for certificate "A." Since the last annual general meeting H. W. Hodges had gained a classical exhibition at Hertford College, Oxford, and A. J. M. Lander had taken a similar exhibition at Sidney Sussex College, Cambridge. Seven boys had passed the whole or a part of the first examination for medical degrees of the University of London; 22 boys had passed the matriculation examination of the same University, 3 of them being in the first division; 14 boys had gained the higher certificate of the Oxford and Cambridge Schools Examination Board; 15 had obtained school certificates; and 18 had gained lower certificates.

After the formal business had been transacted, including the re-election of eight of the retiring members of the council and the election of Surgeon-General Sir Arthur M. Branfoot and Sir Francis H. Champneys to vacancies on the council, a vote of thanks to Sir Henry Morris for the valuable services rendered to the College as treasurer was moved by Sir WILLIAM S. CHURCH, seconded by Sir JAMES REID, and carried by acclamation. In responding the CHAIRMAN referred to the willing assistance which he received on all occasions from the council and the various committees, as well as to the services rendered by the permanent staff at the office in London and at the College.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns, with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 8974 births and 3858 deaths were registered during the week ended Saturday, June 28th. The annual rate of mortality in these towns, which had steadily declined from 13·5 to 11·6 per 1000 in the four preceding weeks, further fell to 11·3 per 1000 in the week under notice. During the thirteen weeks of the quarter just ended the mean annual death-rate in these towns averaged 13·5, against 13·3 per 1000 in London during the same period. Among the several towns the death-rates last week ranged from 4·4 in Enfield, 4·6 in Cambridge, 5·4 in Hornsey, and 6·0 in Swindon and in Bath, to 16·4 in Sunderland, 16·9 in Huddersfield, 17·4 in West Bromwich and in Dewsbury, and 20·5 in Oldham.

The 3858 deaths from all causes were 121 fewer than the number in the previous week, and included 306 which were referred to the principal epidemic diseases, against 308 and 307 in the two preceding weeks. Of these 306 deaths, 105 resulted from infantile diarrhœal diseases, 81 from measles, 68 from whooping-cough, 31 from diphtheria, 15 from scarlet fever, and 6 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 0·9 per 1000, and coincided with the rate in the two preceding weeks. The deaths of infants under two years of age attributed to diarrhœa and enteritis, which had been 105, 100, and 90 in the three preceding weeks, rose to 105 last week, and included 24 in London and its 14 suburban districts, 11 in Liverpool, 9 in Stoke-on-Trent, 6 in Birmingham, 4 in Preston, and 4 in Sheffield. The deaths referred to measles, which had been 97, 83, and 87 in the three preceding weeks, fell to 81 last week; of this number 24 occurred in London, 8 in Liverpool, 8 in Salford, 5 in Stoke-on-Trent, 4 in Aberdare, and 3 each in West Bromwich, in St. Helens, and in Manchester. The fatal cases of whooping-cough, which had been 66, 56, and 77 in the three preceding weeks, declined to 68 last week; 13 deaths were recorded in London, 7 in Birmingham, 6 in Sheffield, 5 in Newcastle-on-Tyne, 3 in Liverpool, 3 in Salford, and 3 in York. The deaths attributed to diphtheria, which had steadily declined from 41 to 23 in the four preceding weeks, rose to 31 last week, and included 7 in

London, 3 in Gloucester, 3 in Birmingham, 3 in Liverpool and 2 each in Stoke on Trent, in Manchester, and in Preston The deaths referred to scarlet fever, which had averaged 22 in the six preceding weeks, declined to 15 last week, of which number 2 were registered in London, 2 in Willesden, and 2 in Liverpool The fatal cases of enteric fever, which had been 12, 15, and 8 in the three preceding weeks, further fell to 6 last week, and included 2 in London

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 1427, 1418, and 1499 at the end of the three preceding weeks, had further increased to 1604 on Saturday last, 286 new cases were admitted during the week, against 202, 186, and 273 in the three preceding weeks These hospitals also contained on Saturday last 817 cases of diphtheria, 467 of measles, 283 of whooping cough, and 36 of enteric fever, but not one of small pox The 891 deaths from all causes in London were 64 fewer than the number in the previous week and were equal to an annual death rate of 10 3 per 1000 The deaths referred to diseases of the respiratory system, which had been 153 122, and 127 in the three preceding weeks, were 126 last week, and coincided with the number recorded in the corresponding week of last year

Of the 3858 deaths from all causes in the 96 towns 186 resulted from various forms of violence, and 350 were the subject of coroners' inquests The causes of 38, or 1 0 per cent , of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in London and in its 14 suburban districts, in Sheffield Leeds Bristol, Bradford, Hull, Newcastle on Tyne, Nottingham, and in 56 other smaller towns The 38 uncertified causes of death last week included 9 in Birmingham, 5 in Gateshead, 4 in Liverpool 3 in Rochdale, and 2 each in Bootle, in Warrington, and in Darlington

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns, with an aggregate population estimated at 2,259 600 persons at the middle of this year, 1215 births and 646 deaths were registered during the week ended Saturday, June 28th The annual rate of mortality in these towns, which had been 15 9, 14 3 and 14 8 per 1000 in the three preceding weeks, further rose to 14 9 per 1000 in the week under notice During the 13 weeks of the quarter just ended the mean annual death rate in these Scotch towns averaged 16 3, against 13 5 per 1000 in the 96 large English towns Among the several towns the death rate last week ranged from 7 4 in Perth, 9 8 in Clydebank, and 10 2 in Falkirk, to 16 6 in Glasgow, 18 1 in Greenock and 29 7 in Hamilton

The 646 deaths from all causes were 3 in excess of the number in the previous week, and included 72 which were referred to the principal epidemic diseases, against 67 and 75 in the two preceding weeks Of these 72 deaths, 35 resulted from measles, 15 from whooping cough, 12 from infantile diarrhœal diseases, 5 from scarlet fever, 4 from diphtheria, and 1 from enteric fever, but not one from small pox These 72 deaths from the principal epidemic diseases corresponded to an annual death rate of 1 7, against 0 9 per 1000 in the 96 large English towns The deaths attributed to measles, which had been 36, 29, and 34 in the three preceding weeks, were 35 last week, and included 26 in Glasgow, 4 in Aberdeen, and 3 in Dundee The deaths referred to whooping cough, which had declined from 40 to 22 in the four preceding weeks, further fell to 15 last week , of this number 6 were registered in Glasgow, 2 in Paisley, and 2 in Motherwell The fatal cases of diarrhœa and enteritis (among infants under 2 years of age) which had been 12 6, and 8 in the three preceding weeks, rose to 12 last week, and included 6 in Glasgow The 5 deaths attributed to scarlet fever were slightly in excess of the average in recent weeks and comprised 2 in Edinburgh 2 in Dundee, and 1 in Greenock The deaths from diphtheria which had averaged 7 in the four preceding weeks, declined to 4 last week, of which 2 occurred in Aberdeen The fatal case of enteric fever was registered in Ayr

The deaths referred to diseases of the respiratory system which had been 98, 68, and 86 in the three preceding weeks, slightly declined to 78 in the week under notice , 27 deaths resulted from different forms of violence, against 27 and 20 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the 27 town districts of Ireland with an aggregate population estimated at 1,199 180 persons at the middle of this year, 624 births and 384 deaths were registered during the week ended Saturday, June 28th The annual rate of mortality in these towns, which had been 17 1, 18 5, and 16 5 per 1000 in the three preceding weeks rose to 16 7 per 1000 in the week under notice During the 13 weeks of the quarter just ended the mean annual death rate in these Irish towns averaged 19 1 per 1000 , in the 96 large English towns the corresponding rate did not exceed 13 5, while in the 16 Scotch towns it was equal to 16 3 per 1000 The annual death rate last week was equal to 14 9 in Dublin (against 10 3 in London and 16 6 in Glasgow), 16 9 in Belfast, 16 3 in Cork 15 3 in Londonderry, 10 8 in Limerick, and 26 6 in Waterford while in the remaining 21 smaller towns the mean death rate was equal to 20 0 per 1000

The 384 deaths from all causes were 4 in excess of the number in the previous week and included 27 which were referred to the principal epidemic diseases, against 19 and 23 in the two preceding weeks Of these 27 deaths 11 resulted from infantile diarrhœal diseases, 8 from measles, 4 from scarlet fever, 2 from diphtheria, 1 from enteric fever, and 1 from whooping cough but not one from small pox The mean annual death rate from these diseases last week was equal to 1 2 per 1000 , in the 96 large English towns the corresponding death rate did not exceed 0 9, while in the 16 Scotch towns it reached 1 7 per 1000 The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis which had been 10, 7, and 6 in the three preceding weeks, rose to 11 last week and included 7 in Dublin and 2 in Belfast The deaths referred to measles, which had been 9, 2 and 7 in the three preceding weeks were 8 last week, of which 3 were recorded in Waterford and 2 in Londonderry The 4 fatal cases of scarlet fever, 3 of which occurred in Belfast and 1 in Galway, were slightly in excess of the average in recent weeks The 2 deaths referred to diphtheria were registered in Belfast and Larne respectively, and the fatal cases of enteric fever and whooping cough in Belfast

The deaths referred to diseases of the respiratory system, which had been 62, 71, and 61 in the three preceding weeks, were 60 in the week under notice Of the 384 deaths from all causes 120, or 31 per cent , occurred in public institutions, and 9 resulted from different forms of violence The causes of 13, or 3 4 per cent , of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest , in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 1 0 per cent

THE SERVICES

Royal Navy Medical Service

In accordance with the provisions of Order in Council of April 1st, 1881, Surgeon Ambrose Cyril Wilson has been allowed to withdraw from His Majesty s Naval Service with a gratuity (dated June 22nd, 1913)

Royal Army Medical Corps

The undermentioned Captains to be Majors —Alexander W Sampey and Henry Rogers (dated June 27th 1913) and Alfred W A Irwin (dated July 1st, 1913)

The undermentioned Lieutenants are restored to the establishment (dated July 1st, 1913) —Robert B Price and William V Corbett

Captain William W Boyce is placed temporarily on the half pay list, on account of ill health (dated June 29th, 1913)

Colonel H M Sloggett has taken up duty as Assistant Director of Medical Services to the Belfast District Colonel F J Jencken has joined at Colchester

Lieutenant Colonel H H Adamson has been appointed Senior Medical Officer at Strensall Lieutenant Colonel J Thomson has been appointed officer in charge of the Royal Army Medical Corps Depôt at Aldershot in succession to

Lieutenant-Colonel G. D. Hunter, D.S.O. Lieutenant-Colonel R. J. W. Mawhinny has been selected for charge of the Military Hospital at Nasirabad Cantonment. Lieutenant-Colonel M. J. Sexton has taken over command of No. 22 Company of the Royal Army Medical Corps at Wynberg. Lieutenant-Colonel C. A. Young has been appointed Deputy Assistant Director of Medical Services to the Welsh Division.

Major H. S. Thurston has been appointed to the Dublin District. Major H. G. Martin has been selected as Camp Commandant to the Royal College of Surgeons (Ireland) Contingent of the Officers Training Corps during the training season. Major F. J. Whelan has been appointed to hold charge of the Military Hospital at Jhansi Cantonment. Major G. E. F. Stammers has taken up duty as Deputy Assistant Director of Medical Services (Sanitary) to the Fourth (Quetta) Division. Major T. B. Unwin is to hold charge of the Military Hospital at Mount Auriol, Sierra Leone Protectorate. Major F. J. Palmer has been granted five months' leave of absence home from India. Major P. O. Douglas has been transferred from Jubbulpore Cantonment to the Military Hospital at Nowgong. Major H. E. Staddon has left Dover for a tour of service in India. Major J. S. Johnston has been granted two months' general leave of absence in India. Major H. O. B. Browne-Mason has been appointed Deputy Assistant Director of Medical Services (Mobilisation) to the Sixth (Poona) Division. Major T. Biggam has taken over charge of the Reception Station at Bordon Camp. Major W. E. Hardy has joined at Cawnpore Cantonment. Major S. A. Archer has been granted six months' general leave of absence home from India.

Captain A. G. Wells has been appointed Specialist in Advanced Operative Surgery to the Lahore Division of the Northern Army. Captain F. R. Laing has joined the Military Hospital at Lucknow Cantonment. Captain A. D. Stirling has arrived home on leave of absence from Khartoum. Captain T. McM. Phillips has been transferred to the Military Hospital at Cawnpore Cantonment. Captain J. R. Foster has been appointed to hold charge of the Military Hospital at Neemuch Cantonment. Captain W. J. Dunn has left Mhow Cantonment for a tour of service in Burma. Captain T. E. Harty has joined at York. Captain J. S. Gregg has taken over charge of the Bacteriological Research Laboratory at Brigade Headquarters, Karachi Cantonment. Captain H. V. Stanley has arrived home on general leave of absence from Egypt. Captain E. C. Whitehead has left the Military Hospital at Glasgow for service in India. Captain H. E. Priestley has been transferred from the Military Hospital at Tidworth, Salisbury Plain, to the Military Hospital at Warwick. Captain A. C. A. Amy has been granted seven and a half months' leave of absence home from Ranikhet Cantonment. Captain G. F. Dawson has been transferred from the Military Hospital at Meerut Cantonment to Chakrata for duty. The following Captains have been selected to attend the next course for promotion to the rank of Major at the Royal Army Medical College: G. de la Cour, W. Egan, A. Dawson, F. Forrest, A. S. Williams, V. G. Johnson, C. R. M. Morris, E. W. M. Paine, F. D. G. Howell, and P. Sampson. Captain T. T. H. Robinson has been appointed to the Military Hospital at Sheffield. Captain F. J. Stuart has been transferred from the Military Hospital at Muttra Cantonment to Agra. Captain J. James has arrived home for duty from Potchefstroom. Captain H. W. Russell has been placed under orders for a tour of foreign service. Captain J. J. D. Roche has arrived home on leave of absence from Gibraltar. Captain R. S. G. Gregg has been transferred from the Eighth (Lucknow) Division to the Military Hospital at Karachi Cantonment. Captain A. Hendry has been granted six months' general leave of absence home from India. Captain C. E. L. Harding has been permitted an extension of his tour of service in India for one year. Captain C. McQueen has joined at Aldershot.

Lieutenants T. J. Hallinan, W. T. Graham, and T. A. Weston have been appointed to the Military Hospital at Lucknow to undergo a course of instruction in Indian sanitation. Lieutenant D. T. Richardson has joined the Military Hospital at Edinburgh. Lieutenant E. G. S. Cane has been placed in charge of the Bacteriological Research Laboratory at Brigade Headquarters, Colaba, Bombay. Lieutenant J. Hare has been appointed to the Belfast District. Lieutenant W. Bisset has left Woolwich for a tour of service in India. Lieutenant W. B. Laird has taken up duty in the London District. Lieutenant C. H. Harold has been appointed Specialist in Dermatology and Venereal Diseases to the Lahore Division of the Northern Army in India. Lieutenant R. B. Phillips has been appointed to the Cork District. Lieutenant R. C. Carlyle has joined the London District. Lieutenant D. T. M. Large has been transferred from the Military Hospital at Glasgow to Glencorse. Lieutenant R. T. Vivian has joined at Kildare on transfer from the Curragh Camp. Lieutenant E. V. Whitby has been transferred from Cork to the Military Hospital at Fermoy. Lieutenant W. L. E. Fretz has joined at Rawal Pindi Cantonment.

INDIAN MEDICAL SERVICE.

Surgeon-General Sir C. Pardey Lukis, K.C.S.I., Director-General, has arrived home on six months' leave of absence from India.

Lieutenant-Colonel H. B. Melville has been appointed to hold Civil Medical Charge at Delhi. Lieutenant-Colonel C. H. James, civil medical advisor to H.H. the Maharajah of Patiala, has been selected for appointment as Civil Surgeon at Simla in succession to Lieutenant-Colonel C. Duer. Lieutenant-Colonel J. Davidson, D.S.O., has been appointed to hold Civil Medical Charge at Lahore in succession to Lieutenant-Colonel W. Ronaldson Clark. Lieutenant-Colonel J. T. Calvert, principal of the Government Medical College at Calcutta, has been granted nine months' leave of absence combined with furlough home from India. Lieutenant-Colonel J. Crimmin, V.C., C.I.E., has been appointed to officiate as Health Officer of the Port of Bombay.

Major C. H. Bensley has been appointed to the Central Jail at Nagpur for duty. Major J. H. McDonald has been granted 18 months' leave of absence home from India. Major E. A. C. Matthews has arrived home on general leave of absence from India. Major E. O. Thurston has been appointed to officiate as Professor of Surgery at the Government Medical College, Calcutta, during the absence of Lieutenant-Colonel R. Bird, C.I.E., M.V.O. Major V. H. Roberts has been appointed to hold Civil Medical Charge of the Chhindwara District additional to his duties as civil surgeon at Seoni.

Captain A. J. V. Betts has been appointed Resident Surgeon, St. George's Hospital, Bombay, and Professor of Materia Medica at the Grant Medical College, Bombay. The services of Captain F. W. Sumner have been placed permanently at the disposal of the Government of the United Provinces of Agra and Oudh. Captain J. S. O'Neill, superintendent medical officer of travelling dispensaries, Benares District, has been placed on special plague duty at Lucknow. Captain D. L. Graham has arrived home on general leave of absence from India. The services of Captain L. Hirsch have been placed at the disposal of the Government of Madras. Captain R. J. Binning has been appointed a Specialist in Midwifery and Diseases of Women and Children. Captain C. F. Marr, medical officer, 90th Regiment of Punjabis, has been appointed to officiate as Medical Storekeeper to the Government of India at Lahore Cantonment, vice Major A. A. Gibbs. Captain J. L. C. Little has been granted six months' extension of leave of absence home from India on medical certificate. Captain H. M. Brown has been appointed to officiate as Deputy Sanitary Commissioner in Bihar and Orissa during the absence on leave of Captain W. O. Ross.

The services of Lieutenant J. V. Macdonald have been placed at the disposal of the Chief Commissioner of Assam for employment on the North-East Frontier. Lieutenant P. F. Gow has been appointed Specialist in the Prevention of Disease, and has been placed in charge of the Bacteriological Research Laboratory at Brigade Headquarters, Allahabad Cantonment.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Ian D. Dickson to be Captain (dated June 17th, 1913).

The undermentioned Lieutenants are confirmed in their rank:—Samuel Wright, Frederick Jefferson, and Walter E. Elliott.

The undermentioned to be Lieutenants (on probation):—Norman Veitch Lothian, late Cadet Sergeant, Glasgow University Contingent, Officers Training Corps (dated May 8th, 1913), and Cadet Robert Taylor, from the Glasgow

University Contingent, Officers Training Corps (dated June 9th, 1913).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Lieutenant-Colonel and Honorary Surgeon-Colonel William R. Smith, on completion of his period of service as Sanitary Officer of a Territorial Division, is retired, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 2nd, 1913). Major Peter Caldwell Smith, from the 2nd London Sanitary Company, Royal Army [illegible] orial [illegible] rps; [illegible] the Territorial Force, to be Major (dated July 2nd, 1913).

Attached to Units other than Medical Units.—Captain Donald G. Campbell to be Major (dated May 20th, 1913). Captain Charles E. Humphreys to be Major (dated June 7th, 1913). Major John L. Thomas, C.B., resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 2nd, 1913).

ARCHIVES DE MÉDECINE ET PHARMACIE NAVALES.

In the April number Dr. Kergrohen (Surgeon-General in the French Navy) continues his account of the hospitals on the China station, in Annam, Tonkin, Hong-Kong, and at the Chinese ports. He is very pleased with the situation and equipment of the Naval Hospital at Hong-Kong and is much struck by its cleanliness and comfort. He thinks patients are better off there than in the Civil Hospital, where there are fewer nurses, though the accommodation is in other respects just as good. It is interesting to note that the word "nurses" appears to have been adopted into French. The "wonderful work" done at Hong-Kong which has got rid of malaria is also mentioned. In Canton he found the Hospital Paul Doumer (named doubtless after the great French proconsul); it is exclusively for Chinese and forms part of a French training school for Chinese physicians. He describes it as "vast," but does not give even an approximate number of the beds established in this or in the other hospitals described. This is a great pity. For the sake of junior officers we would say that in the report on a hospital the *most important single fact that can be stated is the number,* however approximate, of its beds. The want of a definite statement of size diminishes or prevents interest in an *otherwise quite instructive story. There is also a small* French hospital for Europeans on the Shameen Island at Canton. Dr. Barbe, staff-surgeon in the French Navy, reports at length five cases of gonorrhœal rheumatism treated successfully (loss of pain, swelling, and fever) by the antimeningococcus serum of Dopter.

THE ORDER OF THE MEDJIDIEH.

The King has given to Captain R. G. Anderson, R.A.M.C., permission to accept and wear the decoration of the Fourth Class of the Imperial Ottoman Order of the Medjidieh, which has been conferred upon him by the Khedive of Egypt in recognition of valuable services rendered by him.

REWARDS FOR SERVICE IN THE ANTARCTIC.

The following have been notified for special promotion:—Surgeon George Murray Levick (promotion to Fleet Surgeon on Nov. 21st, 1915, subject to his qualifying for advancement to Staff Surgeon). Surgeon Edward Leicester Atkinson (promotion to Staff Surgeon with seniority of May 12th, 1913, on qualifying for that rank).

THE INSURANCE ACT IN CORNWALL.—The first meeting of the Insurance Committee for the Liskeard and Fowey district was held last week, when it was reported that 73,585 insured persons had been registered in Cornwall and 148 medical practitioners and 65 chemists had accepted services; it was also stated that the Act was working well, and the *medical men, with only a few exceptions,* were thoroughly satisfied with the treatment they received. Dr. Roper, the tuberculosis medical officer, who was present at the meeting, gave an account of the sanatorium-benefits, and remarked that it was more important to make a patient's home into a sanatorium than to send the case away for treatment.

Correspondence.

"Audi alteram partem."

ST. GEORGE'S HOSPITAL AND THE KING'S FUND.

To the Editor of THE LANCET.

SIR,—While I cannot consider Sir Henry Burdett's courteous and restrained letter as a reply to mine or as calculated to alter my natural if "regrettable" bias, there are one or two points which call for explanation. With regard to his first point, I regret that I have hastily attributed to [illegible] the *Hospital,* a paper [illegible] nry Burdett's views. [illegible] value on the accuracy and completeness of the figures submitted for audit, and it is precisely on a point of this kind that some of the present difficulty turns. I was careful to insist that Sir Henry Burdett spoke as a governor of the hospital and *not* as a representative of the King's Fund. He appears to think that I have misrepresented him. If so, he owes me some thanks for giving him the opportunity to state his true views, as I did not write until I had assured myself that my impressions were shared by many who were present at the meeting. A letter to you, Sir, seemed to be the only way by which, under the conditions of this unfortunate dispute, any appeal to the true paymasters of the Fund could be made. Sir Henry Burdett possesses greater facilities, and it is, perhaps, my unfortunate bias which prevents me from considering that his attitude of detachment is such as to make him a suitable arbiter in a controversy in which the same body is both defendant and judge.

I am, Sir, *yours faithfully,*

London, June 30th, 1913. CHAS. SLATER.

SIR VICTOR HORSLEY AND MR. McKENNA.

To the Editor of THE LANCET.

SIR,—If the questions at issue were only personal I should leave the Home Secretary's accusations to recoil upon their author, but as it is vital to the professional safety of the Fellows and Members of the Royal College of Surgeons of England that unanswered slanders should not be bandied about secretly among their colleagues and concealed from the accused persons, I cannot allow Sir Rickman Godlee's letter to pass without comment. I say *secretly* because for six weeks I was kept in ignorance of Mr. McKenna's communication to the College. The principal facts are clear—namely, that the Home Secretary accused Mr. Mansell Moullin and myself of having made complaints against the professional conduct and skill of two medical practitioners. We made no such complaints, and the inaccuracy of the Home Secretary's accusations has elsewhere been demonstrated.[1]

The President of the College says I have "a fixed idea" that he is conspiring against me. I consider this description of my attitude is calculated to damage me in the eyes of my professional colleagues. The Home Secretary sent the accusations to the President on May 5th. On either May 5th, 6th, or 7th Sir Rickman Godlee held a consultation at the *Home Office with Sir Edward Troup, in the course of which* (I am informed by Mr. Mansell Moullin) he told the Home Office that that Department could bring a libel action against us.

The documents were subsequently placed before the Council at its regular meeting on May 8th.

With regard to Sir Rickman Godlee's statement that he replied to my letter asking to be informed of the charges against me before he received my solicitor's first letter, I made my statement relying upon the dates of posting. I accept Sir Rickman Godlee's statement that the letter, which did not reach me until the following morning, was written on the previous day, before the receipt of my solicitor's first letter.

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[1] Manchester Guardian, Globe, &c., June 23rd.

I am, Sir, yours faithfully,
VICTOR HORSLEY.

Cavendish-square, July 2nd, 1913.

A PLEA FOR THE APPOINTMENT OF A ROYAL COMMISSION ON VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—It is to be earnestly desired that Sir Malcolm Morris's plea for a Royal Commission on Venereal Diseasewill be strongly supported by the medical profession.

Since the repeal of the Contagious Diseases Acts in the early "eighties" several circumstances, such as the study of eugenics and the writings of certain popular authors have combined to educate and prepare the people for the unprejudiced and intelligent appreciation of the objects of a Royal Commission on these disorders. They inflict untold suffering, do infinite harm, and are the cause of an equivalent annual loss of some £7,000,000. Finally, they are preventable, and should be extirpated and erased from the nomenclature of diseases affecting mankind. In April, 1911, some correspondence took place in your contemporary, the *British Medical Journal*, on the control of venereal diseases. I was actuated to take part in this correspondence because I had in mind a paper entitled "Syphilis and the State,"[1] during the preparation of which I studied the reports of the Commission on the Contagious Diseases Acts, and I remembered that the chief arguments used by those who succeeded in getting these Acts repealed were that the diseases were difficult and impossible to diagnose, that the result of treatment was uncertain so far as rendering a person incapable of spreading the infection, and that for these reasons innocent people were erroneously and futilely subjected to the hardships and taint of being inspected and placed in lock hospitals. I considered that the newly discovered methods of diagnosis and treatment would nullify these objections and arguments, and that if they did not justify a renewal of the Contagious Diseases Acts they at least warranted some legislative principle which would control the spread and perpetuation of venereal diseases.

Personally, I believe that each case should be notified, and that a printed card stating the nature and danger of the disease should be given to every venereal patient. By this means every fresh case should be traceable to its source of infection, and the guilty person, being unable to plead ignorance, should be held guilty of inflicting bodily injury on another and be punished accordingly. I would not penalise a person for contracting the disease, but for spreading it.

I am, Sir, yours faithfully,
SEYMOUR STRITCH,
Member of the Board of Governors (formerly R.M.O.), the Lock Hospital, Dublin.

June 28th, 1913.

To the Editor of THE LANCET.

SIR,—Those who are familiar with the prevalence and ravages of syphilis cannot read Sir Malcolm Morris's temperately worded appeal without agreeing with its general tenour. I have already advocated free treatment at all our general hospitals upon the following grounds. In no other infective disease are such brilliant (may we say permanent?) cures seen as those which follow the appropriate treatment of syphilis—results alike encouraging to the patient and the physician. In the absence of correct treatment a sufferer may remain a danger to the community for months, possibly years. Under proper care immediate infectivity can be arrested in a very short time, and the influence upon the future generation abolished. From the standpoint of the hygienist there appears to be no reason why syphilis cannot be as easily and effectually stamped out as hydrophobia and small-pox. Hospital care in certain stages of syphilis is imperative among poorer patients, and will amply repay the sufferer and the community. I believe an incalculable amount of good would be done if hospitals, and especially the skin department of general hospitals, would ungrudgingly receive cases of active and early syphilis.

I am, Sir, yours faithfully,
R. PROSSER WHITE.

Wigan, July 2nd, 1913.

To the Editor of THE LANCET.

SIR,—I trust that you will accord me a little space to suppo the plea of Sir Malcolm Morris and your own leading articl for the appointment of a Royal Commission on Syphilis. Th time is surely ripe for the consideration of this difficul subject in the light of the recent advances in its earl diagnosis and of the introduction of a means of treatmen which has diminished the time of infectivity of the earl stages to manageable limits. It is suggested that the line upon which the health authorities should proceed are thos taken in Australia. Of course, it is important to determin whether compulsory notification, even if secret, might not a in a contrary sense to that desired, and that infected perso would be strongly tempted to dispense with treatment exce at the hands of the unqualified. What seems to me of great importance is the education of the public, and the insistenc of the profession upon the enormous risks which are r by late and insufficient treatment. Again, every assistanc should be given to the profession in the diagnosis of t disease. It is every whit as important for the communit that the practitioner should be able to get a suspected chanc examined for spirochætæ or to have the Wassermann te applied as it is to have a swabbing examined for the Kleb Löffler bacillus or a Widal examination made in a suspecte case of typhoid. In a paper read on Dec. 16th, 1911 before the Plymouth Medical Society I urged this, for is impossible for the practitioner to perform with the nece sary accuracy the examination himself. In the large tow there would be no great difficulty in obtaining these ex minations, and the few cubic centimetres of blood requir for the Wassermann test could be sent through the post certain centres with the greatest of ease.

Again there are, as Sir Malcolm Morris so forcibly pu before us, extremely few facilities for the adequate trea ment of syphilis in our general hospitals. To properl carry out Ehrlich's treatment it is essential that there *shoul* be beds available. I have before me a copy of the by-laws of a large general hospital in London which contains th following words: "No persons ...... suspected to have th venereal distemper, small-pox, itch, or other infectious dis order ...... shall be admitted on any account whatever. Where these regulations are still in force the authoritie urge that all such cases should be sent to special institu tions or to the Poor-law infirmaries, proceedings which a found in practice to deter the sufferer from treatment. I my opinion, there should be no bar whatever to the admissio of cases of this kind requiring treatment, whether in specia wards or under certain circumstances even in the genera wards.

I am pleased to see that attention is focused upon syphilis insontium, which is far too little considered in all the controversies which have raged round this subject. I need hardly refer to the cases in which members of our profession, dentists, students, nurses, midwives, and maternity nurses have been infected in discharge of their duties, such are only too common. I would particularly draw attention to three groups of cases which come under observation in private practice and in the hospital out-patient department. I will call them for brevity's sake (1) domestic, (2) marital, and (3) occupational, and offer the following illustrations, which could easily be multiplied in the experience of most physicians and surgeons attached to a large hospital. (1) Domestic: A woman with a baby at the breast, her little daughter aged 5, and another daughter aged 12, came to my department at the London Hospital. The mother had a well-developed secondary eruption, the baby was gravely ill with the hereditary disease, the elder girl who assisted her sister with the children had a primary sore on the lip, and the little girl had a primary chancre in the mouth. I could not get the father of the family to attend. "He could not leave his work." (2) Marital: A young woman, the wife of a baker, came under my care with a secondary eruption, sore-throat, &c. She had been married three months. I got the husband to attend, and he was found to be suffering from untreated syphilis. I may add that he was continuing his avocation as a baker. This is, of course, the commonest type of case. (3) Occupational: My colleague, Dr. Theodore Thompson, permits me to mention the case of a boy aged 15, a glassblower's apprentice, who attended as an out-patient with a primary chancre on the lower lip. His duty (which I have learned in another instance is the custom) was to take the blowpipe from a senior employee and continue blowing before removing the blown bottle. I mention this case because the elder worker was induced to come to the hospital and was found to be suffering from active syphilis of the buccal cavity following a genital chancre. It is a grave injustice to debar such cases from treatment in a general hospital and to send them to a lock hospital or to a Poor-law infirmary.

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[1] Transactions of the Royal Academy of Medicine in Ireland, vol. xxv.

[1] Practical Results of the Recent Advances in the Diagnosis and Treatment of Syphilis, THE LANCET, 1912, vol. i., p. 153.

The larger question of the treatment of the prostitute has two aspects—preventive and curative. Preventive measures are the business of the State, and involve such important issues that it is impossible to discuss them here. As regards treatment, we as a profession can only insist on the best opportunities being given to all alike for the speedy cure of their disease. No obstacle on moral grounds or penal restrictions should be put in the way, and it is here that we may meet with opposition. Public opinion is, however, progressive, and a public opinion which has sanctioned the payment of maternity benefit to an unmarried worker may be brought to see that it is for the good of the State that this grave malady should be boldly attacked in its most prolific source. On every ground a careful inquiry is necessary, and I heartily support the plea for a Royal Commission.

I am, Sir, yours faithfully,
JAMES H. SEQUEIRA.

Manchester square, W., June 29th, 1913.

To the Editor of THE LANCET.

SIR,—Now that so distinguished a leader as Sir Malcolm Morris has raised his standard in revolt against the tyranny of cant and prudery, it is to be hoped that a campaign will be waged with courage and determination until a decisive victory for common sense has been achieved. That one of the most widespread contagious diseases, which is at the same time terrible in its consequences, should be selected for special exemption from notification is a monstrous anomaly and an insult to the intelligence of all persons of sober and unbiased judgment.

When speaking at the discussion on the Present Position and Treatment of Syphilis, which took place before the Royal Society of Medicine in June, 1910, I emphasised the fact that we live in the days of preventive medicine, and that it speaks ill for the courage and dignity of the medical profession that it has allowed unpractical extremists to dictate to it on such an important question of public health. I stated as my opinion that a united medical profession could insist upon syphilis being ranked as a notifiable disease with efficient regulations and penalties to ensure that the present untrammelled licence to hand on infection shall be ended. True freedom has always been opposed to injurious licence, and legislation with the object of ensuring the health of the individual and the race cannot be considered an encroachment on the liberty of the subject.

In October, 1910, Dr. T. W. Parkinson gave an address entitled "A Plea for the Adoption of a Contagious Diseases Act," as his presidential address to the Chelsea Clinical Society, and at the next meeting of the society Mr. J. H. Dauber read a paper on the Notification of Syphilis. I then gave it as my opinion that the licensed house system was not of practical value, that the licensed houses were used chiefly by strangers in the country, and that it was the unlicensed amateur who spread infection. The scheme which I then advocated, and still believe to be practical, consisted of—

1. Immediate notification to a special medical officer of health for venereal diseases.

2. Heavy penalties for omission to notify and for treatment of [illegible] officer should obtain from [illegible] be visited, inspected, and informed as to his or her state as regards infection.

5. Any infected persons would be given the choice of free treatment at a hospital or, if preferred, would be allowed to attend any medical man they wished as a private patient.

6. Infected persons would then be told that if, up to the time that they were given a certificate of freedom from infection, they conveyed the infection venereally to any other person, such infection was a criminal assault, punishable by a term of three months' imprisonment.

7. Equal treatment for both sexes.

As in the great majority of cases of venereal infection the infectious party must have full knowledge as regards infectivity, and that such infection is only passed on by a voluntary act, it appears that venereal disease, far from being t[illegible]ntrol, is the [illegible] that can be [illegible]

I am, Sir, yours faithfully,
HUGH WANSEY BAYLY.

Upper Berkeley street, W., June 28th, 1913.

THE SIGHT TESTS OF THE BOARD OF TRADE.

To the Editor of THE LANCET.

SIR,—I have read several letters in THE LANCET relating to the sight tests of the Board of Trade, and having had considerable experience of sight testing for railway men to the extent of several hundreds every year for over 17 years, I think I should quote my results. Unfortunately, being now on leave I cannot get at the exact figures, but roughly 10 per cent. of the men tested fail to pass 6/6 Snellen's type and 5 per cent. colour vision, which includes the combined tests of naming colours of wool skeins and the lamp test at night. The naming of colours is most important; many cases of colour blindness can match colours fairly well, recognising shades in wools, but absolutely fail when both old and new red and green flags are used as a test. Another very important point in vision-testing is the presence in about 1 per cent. of cases of a defective distant colour vision. Men who can recognise colours in the wool test and in the 1/8th in. aperture lamp test at 30 yards cannot distinguish the colours of flags, nor the red coats of men on duty in the rifle range shooting butts at 300 yards and upwards, nor the lamp lights at long ranges. This fact I pointed out some ten years ago in the *Indian Medical Gazette*, and it is one which may account for several accidents to ships and trains where obviously pilots and drivers have mistaken distant lights and signals. The men concerned were subsequently found able to pass the near vision tests. As far as I know, this is an original observation, and perhaps Dr. F. W. Edridge-Green, with whose letter in THE LANCET of June 21st I am in complete agreement, might like to confirm this observation.

I am, Sir, yours faithfully,
H. G. WATERS,
Medical Officer, Jamalpur, India.

June 22nd, 1913.

THE LATE SIR JONATHAN HUTCHINSON.

To the Editor of THE LANCET.

SIR,—The late Sir Stephen Mackenzie once said, towards the end of his career, "I began my professional life as Mr. Hutchinson's pupil, I remain his pupil still." This illustrates the affectionate respect and attachment which old London Hospital men felt for the surgeon whose commanding ability long gave him the first place at their school. He held that place by virtue of his surgical skill—a bold operator in pre-Listerian days, witness his performance of laparotomy for intussusception—and by the faculty of teaching which he possessed in an uncommon degree, patiently expounding and enforcing the principles of his art. But it was his personality which especially counted, and which drew to him the crowds of students who followed him round the wards. Other lectures might be ill-attended, but "Jonathan" had plenty of auditors. We believed in him, and took him for a model of medical life and conduct. He was not exactly genial or very approachable, being originally of a shy nature, and disliking all his life functions of any kind. He was, indeed, of rather silent habit, quiet, and unhurried; somewhat oracular to his patients, but with no such impressive qualities of manner and emphasis as those which gave to his friend and energetic colleague, Sir Andrew Clark, much of his *éclat*. Yet there was a magnetism about Hutchinson, the magnetism of a nature wholly possessed by the search for truth, of a mind keenly observant, accurate in detail, yet apt to generalise, and many of whose generalisations had taken rank as discoveries. For already in the "seventies" you could hardly open a book on any department of medical science without finding Hutchinson referred to. His temperament was balanced, candid, and free from prejudice; he made no mystery of his teaching, but was ready to expound all he knew; and one felt in listening to him that here was a man on the frontiers of science always pushing out into fresh areas of knowledge. His language was lucid and precise, spiced every now and then with dry humour or with a reference to his favourite poet Browning. He made his points clearly, and his frequent "I repeat," though it may have become a mannerism in his later years, helped to make effectual impressions upon the student mind.

It was his habit in his systematic lectures on surgery often to pick out on entering the theatre one of his auditors and to ask him questions, and under cover of these questions and of the discussion of incorrect answers to build up his theme for the day. Certainly, it was a method which fixed the attention of his hearers. Students were an unruly lot in those days, and many of our lecturers were uncivilly treated or had practical jokes played upon them—some we almost declined to hear. One of the lecturers on physiology—peace to his memory—the men had no respect for; he could not keep order, and the theatre was sometimes a bear garden. But no pranks disturbed the calm progress of "Jonathan's" discourse. It is said that once, and once only, a trick had been played with the preparations he was showing. It was never repeated.

Upon not a few subjects Hutchinson spoke as a master. It was our fault entirely if we, his pupils, did not attain to a full grasp of the subject of syphilis, its stages, its symptoms and manifold disguises, and their treatment. He read a paper before the Hunterian Society early in the "seventies," which laid down the treatment of the secondary stage of the disease, and I remember well the cases in the London Hospital on which it was based. We very seldom see now the physical wrecks, due either to syphilis or ill-judged mercurial remedies, which were then not uncommon. And if the effects of this scourge in the community are to-day much lightened, whilst we may be glad to ascribe this, in part, to an improved standard of morals, much is also due to the fuller understanding of the disease and its treatment, and in this Hutchinson had a part surely not second to that of any worker in this country. Of his researches in skin and eye diseases I do not speak.

Few men have been so fully absorbed by their quest of knowledge, or have so effectually trained their powers of observation. Like John Hunter he took note of the whole animal world. Birds, flowers, fossils—he was something of an expert in all. History attracted him, and was expressed in his "space for time" chronologies, or displayed by series of portraits. On education and social topics he had thought much, and he had a plan for State bounties upon children, intended to promote their increase, as the chief wealth of a nation.

The influence of Hutchinson upon several generations of students was great, and in this way it has passed on into other lives, communicating to them his own appetite for knowledge, unsatisfied with the moderate repast which is enough for most men. They learned also his clinical instinct, his attitude towards disease—a close and patient observation of nature, scrupulous and accurate record, and how upon these may be built up the theory of a morbid process.

Perhaps as in the case of Darwin some sides of his nature may have been less developed; there was little of emotion or enthusiasm, but there was the power of a master mind, and not a few will unite with me in owing much of any professional success that has attended them to the teaching and example of Jonathan Hutchinson.

I am, Sir, yours faithfully,

June 30th, 1913. R. HINGSTON FOX.

To the Editor of THE LANCET.

SIR,—In your obituary notice in to-day's issue of THE LANCET of the late Sir Jonathan Hutchinson, F.R.S., as regards the medical aspect of his useful life and his ruling principle of searching every subject for Truth you rightly say that much must necessarily be omitted about his past attainments, but I trust you may again be able to allude to other manifestations of his well-stored mind and his desire to impart his knowledge for the good of mankind.

His free Sunday lectures, in his museum at Haslemere, upon every possible subject—scientific, in every branch, especially geology, astronomy, and botany; social, in its development and many problems; moral, in its past and present; education, in its proper aim and method; topics of the day; the character and works of good citizens, artists, and public men; the lives of poets and their sayings—all these were the most delightful and instructive treats to listen to, delivered in the most charming, intensive, logical, and convincing manner; and every one of his sayings was Truth itself, and they have only been fully confirmed by lapse of time, as many instances might show. His "Nature Rambles," too, about his grounds were a revelation of the beauty and purposes of structure and function in the works of the Great Creator.

His "Home University," which he edited in monthly parts, was most instructive and admirable, but pressure of time unfortunately forbade him continuing it more than a year. No man made so much or so good a use of great talents, or did more for the real benefit of the world, and in a modest way, too.

His obituary card, devoid of "mourning," was characteristic:—

In loving Memory of
Jonathan Hutchinson, F.R.S.,
Who died at "The Library," Inval, Haslemere,
the Twenty-third of June, 1913,
in his 85th year.

"I thirst for Truth,
But shall not drink it till I reach the Source."

"What though the radiance which was once so bright
Be now for ever taken from my sight,
Though nothing can bring back the hour
Of splendour in the grass, and glory in the flower;
We will grieve not, rather find
Strength in what remains behind—
In the primal sympathy
Which having been, must ever be;
In th[illegible] spring
Out c[illegible]
In th[illegible] death;
In years that bring the philosophic mind."

I am, Sir, yours faithfully,

Winchester, June 28th, 1913. W. MORTON HARMAN.

THE NEW NAME OF THE THRUSH FUNGUS.

To the Editor of THE LANCET.

SIR,—Recently there has been a disposition to bring into use a new name for this organism—endomyces albicans. Dr. Aldo Castellani used it in his communication on tropical bronchomycosis,[1] and again in his paper at the meeting of the British Medical Association last summer. It has now appeared in a text-book. There is already confusion enough, and the new name induced me to examine the fungus again in six typical cases of thrush in young infants.

Nature of the organism.—Unusual pleomorphism is proved by the many names (including sporotrichum) which have been applied to it. The thready, branching, septated hyphæ seen on mucous membranes suggested its oidium-like character. Three type forms had the name oidium in the past. The grape vine mildew is the oidium of Link (1809). The mould of sour milk was the oidium lactis of Fresenius (1850). The thrush fungus was the oidium albicans of Robin (1853). In the first and second erect, aerial hyphæ—the simplest form of conidiophore—are always present, but botanists distinguish between these two, and the first, being the oldest, alone retains the name oidium. The second is now oospora lactis, the genotype of the group which includes streptothrix forms, the powdery surface on cultures of the latter being well known.

Cultures of the thrush fungus never have aerial hyphæ, but are always smooth like yeast. About 1870 Reess was also impressed by the yeast-like cells so abundant in cultures and the scarcity or absence of hyphæ. Also, he thought he saw, or actually did see, endospores; pure cultures were not so common then. So he referred it to saccharomyces, and the name S. albicans is still sometimes used. After the introduction of pure culture methods endospores were n found. Besides, under certain conditions its mycelial form was much too pronounced for any unicellular budding fungus. Thus it was ejected from saccharomyces once and for all. Meanwhile Hausen's work on Monilia candida had thrown light on the life-history of these organisms, and when Zopf in 1890 referred the thrush fungus to monilia every competent observer accepted the name M. albicans.

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[1] THE LANCET, Jan. 6th, 1912, p. 13.

It only remains to say that Vuillemin, of Nancy, reported to the Academy of Sciences of Paris[2] his rediscovery of endospores, and referred it to endomyces. It may be explained that an endomyces bears much the same relation to a monilia that a saccharomyces does to a torula—the one forms endogenous spores and the other does not. Practically this is the dividing line between fungi imperfecti and the higher fungi. Mlle. Dalrouva, of the same medical school of Nancy, confirmed Vuillemin's observations in her thesis in the following year (1899). With this exception, and for 14 years, neither Vuillemin nor anybody else has seen endospores in cultures of the thrush fungus.[3]

The point has been missed that Vuillemin's organism is not the typical thrush organism at all. He describes it as *neither fermenting sugar nor liquefying gelatin. In* every one of six typical cases examined recently the organism present was a pathogenic, gelatine-liquefying, maltose-fermenting monilia in cultures of which yeast conidia predominate always and hyphæ are often suppressed. The same organism is not uncommon in the mouths of adults. Through the kindness of Mr. K. W. Goadby I obtained cultures of two yeasts described by him as pathogenic in the gums. Both are identical with this thrush fungus.

Mr. A. G. R. Foulerton has described a pathogenic yeast which he isolated from a sore throat.[4] His description and [illegible] Barnard are in every [illegible] Vuillemin discovered a pathogenic endomyces, it is certain that in thrush no such organism is commonly present. For obvious reasons Zopf's nomenclature has not yet fallen into disuse.

I am, Sir, yours faithfully,

Robert Craik, M.D. Glasg.

Uxbridge-road, Ealing, W., June 30th, 1913.

BREAST FEEDING AND GALACTAGOGUES.

To the Editor of The Lancet.

Sir,—In The Lancet of June 14th, in an article on Breast Feeding, Dr. David Forsyth states: "With no means of increasing or modifying the natural supply (of milk) bottle feeding is the first and only resource when an infant fails to thrive on breast milk." In a leading article on this subject in the same issue the statement is made: "We have no knowledge of any drug which will influence the secretion of milk."

Notwithstanding the fact that these are probably the commonly accepted opinions of the profession at large, I venture to state that in lactagol (a dry extract of cotton seed) the profession has a safe and reliable means not only of increasing in amount breast milk deficient in quantity, but also of appreciably raising its fat ratio.

This conclusion I have reached as the result of a series of experiments carried out on some 40 cases at Queen Charlotte's Hospital and in private during the past year. In view of my highly satisfactory experiences with lactagol, I feel that I cannot allow to pass unchallenged the general statement that "We have no knowledge of any drug which will influence the secretion of milk."

I am, Sir, yours faithfully,

Chelsea, June 20th, 1913. Hugh H. Riddle, M.D.

*** In a laboratory report in The Lancet of Sept. 7th, 1912, we alluded, when giving the analysis of lactagol, to experiments brought to our notice which went to show that this substance improved the quantity and quality of milk secreted, and *suggested further trials being made.*—Ed. L.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(By our Special Commissioner.)

(*Continued from p. 1767.*)

XIV.—Blackpool and its Crowds of Temporary Residents.

The Fluctuating Population of Blackpool.

In its way Blackpool is one of the most extraordinary places in England. As everyone knows, it is the great *holiday ground of the working classes who throng the* crowded manufacturing towns of Lancashire and Yorkshire. It has been told over and over again—but is none the less true—that during all the year many a mill hand and factory worker sets aside so many pence or shillings a week so that for one week in the year he shall have a thorough holiday regardless of expense. This resolve not to count the cost applies not merely to eating, drinking, and going to shows, but, should illness supervene, the money is sometimes offered to the medical attendant in the same lavish manner. The social and economic conditions brought about by the influx of such guests are obvious. There are no manufactories, no mills, no special industries at Blackpool. Nevertheless, the residential population is set down in the Census of 1911 at 58,376, and it is now supposed to have increased to about 64,000. There are 14,012 dwellings, which are nearly all occupied; but when we are told that the average population is 4·5 per house, such a figure conveys quite a wrong impression. Many of the houses are practically empty except for a brief period during the year. During that season quite small houses will take in 20, 30, or even 40 visitors, and the reception of visitors constitutes the one great and all-pervading industry of Blackpool. Blackpool is not perhaps peculiar here—one has heard the same story about other seaside resorts—but the position exists in a very aggravated form. No one seems to know positively how many visitors go to Blackpool in the course of the year, but the general impression is that all told they must number close upon three millions; and it is calculated that on the August Bank Holiday, what with the day trippers and others, there are quite a quarter of a million [illegible] he side of these enormous [illegible] pool Insurance Committee [illegible] ons on their books, it will be seen at once that the residential population constitutes but a small problem when compared with that created by the presence of so many visitors. The position is intensified by the fact that nearly all these visitors come, of course, during the three months of July, August, and September; and as these are the *three months when certain epidemic* conditions (for instance, epidemic diarrhœa) and illnesses caused by impurity of food are most likely to occur, it will be seen that Blackpool may well present some problems to the medical man and sanitarian.

How Workmen's Holidays Affect the Medical Practitioner.

The three million visitors, it is calculated, spend on an average £1 each in the town. If this seems a small sum it must be borne in mind that a great number are day trippers who only remain a few hours. For those who stop longer each of the principal manufacturing towns has a week of its own. Thus this year Bolton will be in residence at the beginning of July and Oldham at the end of August. During the holiday week special trains are run from the particular town, the money it has taken a year to save is drawn the day before, and all the workers with their families start off in grand style, many driving triumphantly to the station in cabs. During their absence their town must seem strangely silent and deserted, while the return is in many cases not so brilliant in its features as the exodus had been. There rarely remains any money for cabs. The luggage, which at the departure was piled on cabs regardless of expense, is now left somewhere in or near the railway station, and the smallest child sits on the heap to guard it, while the stronger members go backwards and forwards carrying the articles home one by one. The streets which had been deserted are peopled again with the returning and penniless holiday-makers, the shops all expect to give credit, and the medical man had to do the same in most cases. The position now under the National Insurance Act is singular. A considerable portion of the money painfully and patiently earned during 51 weeks in such towns as Bury, Burnley, Oldham, and Bolton is spent in one single week, and this not in the town where it was made, but at Blackpool. Of course, the deserted localities suffer in common with the tradesmen from this annual tribute paid to Blackpool. The practitioners on the panels of the manufacturing towns are not therefore pleased to be told that they cannot be paid for more than 51 weeks in the year, as a reserve fund must be created so as to pay the Blackpool doctors who attend their patients during the holiday week. The Blackpool practitioners, it is maintained, are not in desperate want of these fractions of 7*s.*, because they share in the prosperity brought by the holiday-makers, and payment at contract price does not represent their due. They claim they are entitled to more, as there is more sickness in the one week of holiday than during the average working week of the year.

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[2] Comptes Rendus, 1898.

[3] Guilliermond, Les Levures (1912), p. 497.

[4] Experimental Blastomycosis, Journal of Pathology and Bacteriology, 1899.

Overcrowding, Overeating, Overdrinking.

At home the mill-hands have a very simple diet, depending largely on their own home-made bread. Some of the holiday makers bring this bread with them to Blackpool, together with a sack of home-grown potatoes. Bed and breakfast can be obtained for 2*s.* a day, several sleeping in one room, and sometimes so closely packed that the beds touch one another. A great deal of the intense overcrowding that used to constitute a veritable scandal has been abolished, and when a practitioner is called into a house he is no longer so likely to tread on some form asleep on the staircase landing. There have been cases when men and women, strangers to each other, have slept in the same room with only a blanket slung across to separate them. In such lodgings the tenants can have no meals except breakfast. For the rest they go to restaurants and cookshops, or content themselves by buying pieces of tinned meat to eat on the sands with bread and fruit. But they are apt to eat unwisely of these things and to commit veritable orgies with cockles and other shellfish. As they are not accustomed to such food the want of restraint in the quantity that they eat has serious consequences, and it will be seen that even without excess of drink there is good cause for the prevalence of digestive trouble. Nine out of ten cases of illness among the population visiting Blackpool during the summer may be ascribed to overeating or overdrinking, or both. Thus, when the medical practitioner penetrates these overcrowded rooms where men or women, some sick, some unsober, lie side by side, we have scenes which, though on shore, recall the worst phases of life on an emigrant ship.

Special Features of Practice at Blackpool.

The busy hours for the Blackpool practitioner during the season are from eleven at night to five in the morning. Then the calls arrive in rapid succession, for the sufferers and their friends, being away from home, are especially fidgety. "Come at once" is the usual message, and this makes the work very exacting. Then the patients being strangers have not yet acquired confidence in the medical adviser who attends to them. But the fact that they are strangers has facilitated the establishment of the ready cash system. There are no such things as doctors' bills and the accompanying array of bad debts. Besides, if a man is ill he cannot spend his money in the public-house or on the attractions of the fair, but as it is a point of honour apparently among the men on these holidays to get rid of every penny they have got they are quite willing to pay their doctors. As one practitioner graphically put it to me: "I believe they would throw their money out of the train rather than go home with it." But medical practice among such patients, though paid for, is not easy. Another practitioner insisted on the dirty habits of some of them, as shown in the readiness with which they will sleep anywhere, spit anywhere, and, when suffering for their pleasures, vomit anywhere. But it must not be imagined that there are only cases of indigestion among them. There is also a good deal of ptomaine poisoning, while miscarriage and abortion are frequent. There are the donkey rides and the switchbacks to bear the blame for abortions which are sometimes due to quite a different cause. In these cases operative procedures and anæsthetics are often required. I was told that many young women who have "got into trouble" come to Blackpool and somehow get out of trouble, attributing their deliverance to the exciting or terrifying influence of the toboggan and other emotional "rides." The medical men of Blackpool are quite on the look-out for wholly false information in these cases.

The Position of the Blackpool Practitioners under the National Insurance Act.

Taken altogether the position of the Blackpool practitioners before they were disturbed by the Insurance Act was good. True, during three months of the year they were terribly overworked, for such a thing as a whole night in bed was and is an unknown luxury to many practitioners during the season. But they received full fees and they made no bad debts. A practitioner told me that in one season he had from 250 to 400 patients and usually would not expect to make a single bad debt among them. Among the residents in Blackpool, while there may be temporary poverty during the dull season, prosperity returns at an assured date, and when the visitors arrive the residents usually pay off their debts; so that in Blackpool there are few poor, no paupers, and the rates only amount to about 5*s.* in the £. In such conditions there were hardly any medical aid organisations—they were not required—but for these very reasons the National Insurance Act was neither needed nor welcomed. As far as the medical practitioners were concerned there were barely 2000 persons in the whole of the town who belonged to Friendly Societies or to clubs providing medical aid. One of the leading practitioners assured me that he had only 150 club patients, and that he did not believe that anyone, at any time, ever had more than 500 on his list. Club practice was not a matter of importance at Blackpool when the Act arrived to make it the rule instead of the exception. Now the Act has forced some 14,000 persons to become contract patients where there used to be only 2000 contract patients, and when we recall that at first it was proposed that insured persons should pay 4*s.* 6*d.* a year, it is not surprising that all the practitioners at Blackpool were unanimous in their determination not to help in the administration of the measure. Every medical practitioner resigned his club during the time of struggle.

The Blackpool Panel.

Even when the Bill was modified and the sum of 7*s.* was allocated, this much more tempting offer did not break the unanimity of the opposition to the project of insurance. But early in January, 1913, the Blackpool practitioners were informed that arrangements had been made to send 15 medical men to the town to work the Act. Inquiries were made to see if this was not a mere scare. The names of the men ready to act as strike breakers were, it is said, mentioned. They were scattered over Manchester, the north of England, and Wales. To prevent this wholesale importation of outside practitioners the Blackpool doctors yielded and went on the panel, but under strong protest. There are about 50 practitioners at Blackpool; of these, 29 were on the panel in April and 32 in May. Let it be at once admitted that the men who are now on the panel, whose objections to State alteration of a condition of things which was quite satisfactory to the public and to themselves were perfectly reasonable, are more satisfied than they expected to be. Their number, as we have seen, is increasing slowly; but at least one prominent practitioner finds that he is losing by the operations of the Act. So far as he can make out from his first three months' experience he has obtained for every item of attendance on insured persons an average of 1*s.* 1½*d.* Formerly he received from these persons 3*s.* 6*d.* fees, and striking off 1*s.* 6*d.* for the cost of the medicines he supplied and of the bad debts—admittedly very few—he used to get a clear 2*s.* Thus either his income will decrease or he will have to do much more work for it. But no general rule can be deduced from these figures, for the conditions vary according to the special character of the practice. Other practitioners at Blackpool calculate that they have made 1*s.* 9*d.* and even 2*s.* on an average for attendance on insured patients. The loss is from the class of patients who paid good fees and who have become insured persons, particularly as they now come for the most trivial ailments. In March my informant, who only made an average of 1*s.* 1½*d.*, said he had 62 attendances out of 85 insured persons. One of them came for a little spot on his forehead which had been there for many years. It is said that this demand for the attendance of the practitioner in trifling cases will not last, but I have not yet seen any signs of its wearing off. I should add that the 1*s.* 1½*d.* per visit received by the practitioner whose experiences are quoted above was accounted for by the fact that there were more than 3000 insured persons who had not selected a medical attendant, so that he received his share of what these insured persons had paid, though he had not and could not have rendered them any service. Otherwise the remuneration per item would have been only 10*d*.

The Act Working Badly.

On the Insurance Committee it is not all plain sailing. The Committee thinks the doctors have been generously treated because they get more than the old club contract rates. But the medical men at Blackpool had little or nothing to do with any sort of contract practice, and much object to render account to a lay committee. At the end of March medical representatives were put on the Insurance Committee. Before that time the Committee did not even know what a wage limit meant. They seemed to think the income tax limit was the wage limit, but there are manual workers who earn more than £160 per annum. Strange to say, professional football players are qualified as manual workers, and at Blackpool a football player is often paid £5 a week. The Insurance Committee at Blackpool will have to acquire knowledge at the public expense, and though this fact was forcibly brought to my mind at Blackpool, the remark must refer to Insurance Committees in all parts of the country. In the meanwhile, the Act is not working to the satisfaction of the public. Complaints are being made on all sides. Some say that they cannot get the benefits to which they are entitled with sufficient promptitude, others say that the medical service is not as good as it was before the Act. The owners of a great number estimated at about 2000 tickets, cannot be traced. These must have been wrongfully issued. The applicants have presented themselves and have obtained a doctor's signature to a red ticket. The names are entered on a list, but when the list reached the Insurance Committee the *name could not be traced.*

The medical service is not running properly yet, as is proved by the great number of complaints which patients have addressed to the Insurance Committee. These complaints should have been recommended to the Medical Subcommittee, but for the time being efforts were made to smooth over all difficulties. It may be good policy not to make any fuss, in the hope that matters will right themselves, but it may also be a dangerous policy.

The Movement for a Big Trade Union.

The Act has affected the position of the consultants who are sent for from Liverpool, Manchester, or other places. Naturally the consultants who approved of the Act thought they would be supported by the panel doctors. At Blackpool, however, it has been just the reverse. One consultant especially, who was constantly sent for from Blackpool, has lost ground, I am told, it being known that he was a strong partisan of the Act. But another consultant, who opposed the Act, championed the interests of the profession and had the courage to fight the Act, is now sent for in preference by the panel doctors. Thus we have the *curious* spectacle of the panel doctors who work the Act specially selecting consultants to help them who are notoriously antagonistic to the Act. "This shows," exclaimed the Blackpool practitioner who related these facts, "what a trade union could do. The panel doctors are faithful to the man who supported them all through, and the panel doctors are against the Act." What practitioners wanted, he went on to urge, is a legal trade union like that, for instance, of the railway servants.

In the meanwhile the panel doctors at Blackpool are holding well together and have completely defeated the attempt of the insurance authorities to impose medical benefits for temporary residents. On April 30th a joint meeting of Blackpool panel doctors and members of the Blackpool Medical Committee met and passed the following resolution unanimously:—

> That this meeting demands a definite guarantee from the Insurance Commissioners that the central fund for the treatment of temporary [illegible] s fees [illegible] made [illegible] such [illegible] *ersons* [illegible]

This resolution has been faithfully carried out. The Whitsuntide holidays have come and gone and not a single visitor has received medical attendance as an insured person but only as a private patient. Obviously there can be no guarantee that the scale of fees proposed will be paid. People who would give themselves the trouble to go through all the forms necessary to transfer their insurance claims for a week or two must be persons of very doubtful health or who are already invalided. A healthy person would not take that trouble; thus there would be but few transfers, and therefore a very small income to meet a disproportionately large amount of illness. Then, as already explained, even among the healthy people, holiday excesses produce an exceptional prevalence of sickness. Finally, those who have enough money to pay for a holiday have clearly proved in the past and the present that they have money enough and are quite willing to pay proper fees, and that, too, without any credit whatsoever. Therefore the Blackpool panel doctors have struck against this part of the National Insurance Act, and so far their strike is entirely successful.

(*To be continued.*)

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool.

THERE is a vacancy for a professor of parasitology at a salary of £600 a year. It is proposed to hold an advanced course of instruction on tuberculosis during the winter months. This course will include laboratory and clinical instruction and instruction in administration; 41 meetings in all. Professor E. W. Hope, Professor J. M. Beattie, Dr. D. Moore Alexander, Dr. C. Rundle, and others, will conduct the courses at Parkhill and Fazakerley Hospitals, at the tuberculosis dispensaries, and at the University laboratories.

New Hospital Appointments.

The losses the medical profession has sustained in Liverpool have caused a rearrangement of the hospital appointments, especially on the medical side. At the Royal Infirmary the death of Dr. O. T. Williams and the creation of an additional appointment caused two vacancies for assistant physicians. These have been filled by the selection of Dr. Pantland Hick, physician to the Stanley Hospital and assistant physician to the Children's Infirmary; he will be associated with Dr. J. Hill Abram. The other appointment has gone to Dr. W. B. Warrington, one of the physicians to the Northern Hospital, where he gives up his beds to become assistant physician at the Royal Infirmary in association with Dr. R. J. M. Buchanan. Dr. Warrington's special work in nervous diseases is well known, and his appointment will no doubt strengthen the teaching staff at the Royal Infirmary. The Northern Hospital has filled the gap by promoting its assistant physician Dr. John Owen. The vacancies caused by Dr. Hick's appointment have been filled by the selection of Dr. J. Murray Bligh for both the Stanley Hospital and the Children's Infirmary. The death of Dr. Arthur J. Wallace caused vacancies at the Shaw-street Hospital for Women and the Maternity Hospital. Dr. J. Hayward Willett was selected for both. Dr. Willett has served as assistant surgeon at Shaw-street and as a district medical officer at the Maternity Charity. Dr. H. Leith Murray was appointed assistant surgeon at the Shaw-street hospital in place of Dr. Willett.

Examinerships at the Royal College of Surgeons of England.

Professor A. M. Paterson has been selected examiner in Anatomy for the Conjoint Board Examinations, and Dr. W. Blair Bell examiner in midwifery and gynæcology.

The Health of Wallasey.

Mr. T. W. Naylor Barlow has presented his report for the year 1912 on the health of the borough of Wallasey. The death-rate and infant mortality rate are exceptionally low, the former being 11·6 per 1000, the latter 76 per 1000 births, with only 1 death from infantile diarrhœa. Mr. Barlow's remarks on scarlet fever are interesting. He shows that the isolation of scarlet fever in hospital has not been attended by all the benefits which at the time of the establishment of these *institutions* it was prophesied would result. Many cases are removed to hospital which could with perfect safety be isolated at home, the only reason for sending mild cases being to save parents trouble. In Wallasey, as in

Liverpool, a large number of births are attended by midwives —866 out of 1791. Of the 4 cases of puerperal fever which were fatal, only 1 occurred in the practice of a midwife, and as she was found to have been guilty of neglect in the case her name was removed from the roll.

Prompt Action by the Liverpool Port Authority.

A case occurred recently which emphasised remarkably the value of the work of the port sanitary authority. The medical officer, boarding one of the steamers with 700 people on board, in the course of his routine inspection noticed a man with some spots on his face and had him isolated as a probable case of small-pox. As the patient had mixed freely with the passengers they were all treated as suspects, their names and destinations were noted, and as far as possible the medical officers of health of the districts informed. There have since been cases recorded among these passengers in places as scattered as Haslemere, Leicester, and Kettering. It is quite possible that but for the energetic action of our port authority these cases would have given rise to outbreaks before they were recognised.

July 1st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Alexandra Days.

THE Queen Alexandra flower festival which was held in Manchester and Salford on June 20th and 21st was a complete success. Over 1,000,000 artificial blooms in the form of wild roses were sold in the city and suburbs, so that the charitable institutions in Manchester and Salford stand to benefit very materially, even when the cost of each bloom is only 1*d*. There was also a great procession through the city of decorated cars and tableaux on wheels accompanied by bands of music. The whole carnival was on behalf of the medical charities, of which there are 21 to participate in the profits. Last year 358,563 patients were treated in these hospitals. The annual deficit on their working amounts to £20,000. It is obvious that this cannot continue, hence efforts in addition to the Hospital Saturday have been made to raise additional funds. In Salford Hospital alone an accident case is admitted on an average in every 35 minutes, while at Ancoats Hospital there are on an average 67 accident cases a day.

A Garden Suburb for Manchester.

Manchester is emulating some other cities and has begun its first effort to found a garden suburb at Alkrington on the north side of the city. The Alkrington housing committee has secured an extensive site of over 700 acres, situated on the hillside between Blackley and Manchester, 300 feet above sea level, where the air is free from the pollution of smoke and where there is a bracing atmosphere. The houses will be built on the coöperative principle. The Coöperative Housing Society came into existence in 1907. It has now 14 affiliated societies, which when they complete their operations will have a capital value of £2,000,000.

Extended Trial of the National Insurance Act by the Medical Men of Manchester and Salford.

The Salford medical practitioners who accepted service under the Act have decided to continue the existing arrangements until the end of this year so that they may be able to test its working on a complete year. They will then consider their position in the light of the 12 months' practice. The result of a postal vote of the Manchester practitioners has been announced. The vote was taken because the existing arrangement terminates on July 15th. At a meeting of the profession the result of the vote was announced, and was to the effect that the practitioners had decided by an overwhelming majority to continue the system until the early part of next year.

Medical Inspection of the School Child.

The medical officer, Dr. A. B. Ritchie, has presented his report for the year ending December, 1912, on the medical inspection and treatment of children to the Manchester Board of Education on June 16th. The number of parents objecting to routine examinations is negligible, and they are in all cases invited to be present at the examination. In 1911 the total number of cases served with a "cleansing notice" was 1571, and in 1912 it was 981, so that there is a great decline in the number of cases called "verminous." The total number of children, excluding those under 5 years of age, was 20,504, and naturally the inspections revealed a great variety of defects. Each inspection on an average takes from seven to eight minutes. In 436 cases the clothing was poor and 445 had poor and insufficient foot-gear. Nearly 1000 children were found to have body vermin. As to nutrition, 987 were distinctly poorly nourished and 5339 were not well nourished. There were 1303 anæmic subjects, many of whom were followed up, and by various agencies their health has improved. The problem of the teeth is always a large one in Lancashire. Of 5-year-old boys and girls 5408 had "fair" condition of the teeth and 1954 were in a bad condition. For 13-year-old children 3615 were fair and 647 were bad—and by "bad" is meant those who had six or mo carious teeth. There were 420 children with subnormal he ing. Nits on the head were found in 2587 children. A mark and important feature in the report is that where possib many cases "have been followed up." Nearly 700 cases skin diseases of one kind or another were detected, includi 187 cases of ringworm and 353 of impetigo. There we also 1010 cases of enlargement of the cervical glands a 1567 of the submaxillary gland.

Cheshire Schools: Toothbrush Clubs and Fresh-Air Schools

The Cheshire education committee at its meeting Crewe on June 16th recommended that a leaflet be dra up by the school medical officer dealing with dental hygie and circulated to all schools in the county; that teachers invited to interest themselves in toothbrush clubs in co nexion with the schools under their charge. The followi question was referred to a committee for report—viz., t methods of construction applicable to both old and n school buildings, which would not only ensure the rooms bei supplied with fresh air at all times, but would also perm of their being used as the equivalent of open-air class-roon The committee decided to call the attention of the Board Education to the "gross injustice to local education aut rities which is involved in the abolition of the 'epidem grant' and in the present system of calling upon authoriti to provide treatment for sick children, and then reduci the grant payable to the authorities on account of tl absence of such children from elementary schools."

June 30th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Royal Infirmary.

THE surgical staff of the Royal Infirmary is shortly to b increased by the appointment of two more assistant surgeons These appointments are preliminary to a general reorganisa tion of the teaching on the surgical side of the hospital particulars of which will shortly be given in these columns.

Burgh of Edinburgh Insurance Committee.

At a meeting held on June 26th considerable discussion followed upon the submission of the following report by the Medical Benefit Subcommittee:—

> 1. That insured persons who are unallocated shall be grouped into four districts for the purposes of allocation, and that they shall be allocated as far as possible to panel doctors resident in these districts.
> 2. That panel doctors whose lists at present number 2000 or more shall not participate in the allocation.
> 3. That as regards the numbers at present on their lists, panel doctors shall be divided into four groups, viz.: (*a*) Those with less than 500; (*b*) with 500 up to 1000; (*c*) with 1000 up to 1500; (*d*) with 1500 up to 2000; and that allocations shall be made in the ratio of four to group (*a*), thre [illegible] c), and one to group (*d*).
> 4. That the [illegible] the right to refuse to any practitioner o [illegible] allocation without giving specific reasons for so doing.

It was stated that 20,000 insured persons had not chosen a doctor. Dr. J. M. Bowie, seconded by Dr. Matheson, moved that unallocated persons be assigned to doctors in proportion to the number of patients at present on their lists. It was argued that these insured persons who had not chosen a doctor were presumably good lives, and that the question of allocation really meant the allocation of funds and not of patients in any number of consequence. On a vote, 21 voted for the minute and 10 for the amendment.

Gift to Edinburgh University.

Edinburgh University Court have not yet decided how best o utilise the residence of the late Right Hon. William 'Ewan, which has been presented to the University. It is enerally understood that Mr. M'Ewan had an idea that it night eventually become the residence of the principal. owever, the University has been for many years in possession of 21, Lansdowne-crescent as a house for the principal, nd although Sir Alexander Grant, the late principal, had is residence there, since the appointment of Sir William urner in 1903 the house has been to let.

Panel Practitioner Sued by Insurance Patient.

An interesting legal point came up before the Sheriff's ourt in Glasgow where an insured patient sued his panel doctor for alleged breach of contract. The pursuer averred hat he was an insured person under the National Insurance Act, and that the defender was the medical man selected by him as his panel doctor. He required [illegible] the month [illegible] him any [illegible] result that the pursuer had to call in another medical practitioner who was not on the panel, and owed him an account of £2 10*s.* The defender's plea was that pursuer had no title to sue, but that the proper party to sue was the Glasgow Burgh Insurance Committee. The sheriff on the preliminary point stated that the pursuer founded his title to sue on the averment of a contract completed between the defender and himself, in the course of and through the statutory procedure. The defender maintained that there were no contractual relations between the parties, and that he could only be called to account by the Glasgow Burgh Insurance Committee with whom is his agreement to render the services which are alleged to have been withheld. His lordship was of opinion that pursuer's interpretation of the legal position was a correct one, and proceeded to point out that the National Insurance Act gives to the insured not only the right to medical benefit, but the right to receive that medical benefit through the services of the medical practitioner of his choice under an agreement arranged no doubt by the Insurance Committee, but to which both the insured and the prac- [illegible] ties. It was difficult to see how [illegible] 'e certain services from another [illegible] consent of the latter to render those services as a matter of right to the former, without there being a contract and a title to sue for damages in the event of the contract not being implemented. If, then, the intention and requirements of the Act were carried out by the regulations and in the procedure adopted by the Insurance Committee to bring the insured and the doctor together, the sheriff was of opinion that the pursuer's title to sue was unanswerable.

Scottish Dental Association.

The Scottish Branch of the British Dental Association held its annual meeting in Dundee recently, when Dr. W. Graham Campbell, of Dundee, was elected president, and Mr. W. T. Finlayson honorary secretary.

Dundee Royal Asylum.

The annual report of the Dundee Royal Asylum states that the expenditure for the year was £4738 1*s.* 1*d.*, being £45 1*s.* 6*d.* more than last year, and the income was £5229 6*s.*, being £197 7*s.* 11*d.* more than last year. The cost of maintenance of inmates is, however, to be increased in the future. The existing agreement with the Dundee Royal Infirmary has been renewed for another year, the charge for each patient being raised from 25*s.* to 30*s.* per week.

New Dental Dispensary for Dundee.

With a view to arranging matters with regard to the proposed new dental dispensary in Dundee, a meeting was held last week in the town hall. It was reported that £375 13*s.* had already been received in donations, and a further £34 promised. Principal J. Yule Mackay moved the resolution that a dental hospital be instituted in Dundee, and in doing so remarked that the proposal was a social reform of a far-reaching kind. The primary object of the institution was to inaugurate a reform. The disease which affected teeth, small in the beginning, led to disastrous results. It was through the avenue of the mouth that some of the most serious diseases that affected mankind arrived. Diseases of nutrition which must of necessity follow disease of the mouth opened the way to serious disease which could not be repaired. The British Government would not employ a soldier with diseased teeth, and in the battlefield of life he who had disease as regarded his mouth and teeth had little chance of survival in the struggle. The principal paid a tribute to the dentists of Dundee, who have practically all promised to support and do the work of the hospital. The hope was expressed that a dental school in connexion with the hospital might be established. The resolution was unanimously carried. The initial cost of equipment for the hospital is estimated at £300, and the annual maintenance at about £400. It is also proposed to acquire premises at a cost of £900.

July 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Insurance Act.

As it is evident that nursing societies may be financially injured by the National Insurance Act, it was suggested at the annual meeting in connexion with the Society for Nursing the Sick Poor in Holywood, held on June 26th, that the different nursing associations in county Down should take concerted action in order to put their claims in a forcible manner before the Insurance Committee of the county council so as, if possible, to get a grant in aid. It was also proposed that Approved Societies should be approached and asked to subscribe 3*d.* per head per insured member, and it was urged that a certain portion of the maternity benefit received under the National Insurance Act should also go to the society. It is, however, most improbable that Approved Societies—who are finding so much of their funds dwindling away in sickness benefit—would ever listen to such suggestions. The secretary of one of the largest new Approved Societies in Ireland writes to the Belfast papers of June 27th urging that independent actuaries should be appointed to examine the estimates which the Government intends to place before Parliament and to report thereon. He mentions many defects of the present Act which are not remedied in the amending Bill.

Hopefield Cottage Hospital, Portrush.

On Thursday, June 26th, an attractive variety *fête* (comprising sale of work, cycle parade, athletics, cake fair, museum, putting-green, palmistry, shooting gallery, and half-hour concerts) was held in the grounds of the Hopefield Cottage Hospital, Portrush, in aid of the funds of that excellent charity, which latterly has been greatly handicapped by the lack of funds. There was a very large attendance, and a considerable amount has been realised.

The Medical Dispute at Londonderry.

The struggle in Londonderry between the Friendly Societies, who have imported two medical men, and the local doctors, who have established a public medical service, continues, and the leaders of the Friendly Societies are doing their best to induce their members to arrange that they shall go on the panel of the imported doctors. Of the 13,000 insured persons only 6000 identification cards have been lodged with the town clerk. In a couple of weeks the Local Insurance Committee is to allocate arbitrarily for medical certificates those who have not yet selected a doctor, and the local medical practitioners ask that these 7000 shall be assigned them, so many to each, but what course will be taken remains to be seen.

July 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Appendicular Sciatica.

AT the Société Médicale des Hôpitaux on June 20th M. Enriquez and M. Gutmann read observations on a number of patients who presented no abdominal symptoms, but sought advice only on account of long-standing intractable sciatica. As abnormal radiating pains, neuralgia increased on lying down, with slight pain in the right iliac fossa and muscular contraction, were noted, the authors resorted to radioscopic examination. They found with the screen that the abdominal pain was localised in the lower extremity of the cæcum, which did not change its position, but remained fixed when it was mapped out in the Trendelenburg posture. The authors operated on three of the patients in whom the pains in the thigh were particularly severe. In these three cases adhesions binding down the cæco-appendicular region low on the posterior wall were found at the operation. After resection of the appendix and freeing of the adhesions the patients were cured of their sciatica. M. Enriquez and M. Gutmann investigated the symptomatology, diagnosis, and pathogeny of this syndrome, and urged the necessity for radioscopic examination of the cæco-appendicular region in cases of sciatica presenting certain abnormal symptoms, speaking highly of the surgical treatment of such cases.

New Legacy for the Academy of Medicine.

A new legacy has been made to the Academy of Medicine. Mdlle. Louise Morand leaves the residue of her property, after the satisfaction of all liabilities, to be devoted as the Academy of Médicine shall determine to societies or undertakings engaged in the treatment of children suffering from or threatened with tuberculosis.

The Treatment of "Port-wine Marks."

M. Albert Weil presented to the Société de Médecine de Paris on June 13th three cases of port-wine marks in which he had obtained almost total blanching of the skin with very satisfactory æsthetic results by the use of X rays. He used a tube with a special window, which allowed the passage of only the slightly penetrating rays. Very few sittings were required.

The Maison du Médecin.

This admirable and relatively recent foundation for the maintenance of aged or impoverished medical men at a minimal cost has recently benefited materially by a subsidy of 180,000 francs, granted by the Commission de Répartition des Fonds de Jeux, to enable it to acquire the Château des Charmettes at Valenton, whither its establishment is to be transferred. It is a splendid domain, very comfortable, close to Paris, a *rus in urbe*, with facilities for all necessary extension for its increasing demands. It will probably be opened in October.

The Unveiling of the Monument to Dr. Guinard.

On June 24th a monument to Dr. Guinard was unveiled on the very spot in the court of the Hôtel Dieu where he was assassinated some two years ago. Speeches were delivered by M. Habert, municipal councillor, on behalf of the City of Paris; by M. Mesureur, representing the Assistance Publique; by M. Strauss, in the name of the Conseil de Surveillance; by M. Landouzy for the Faculty of Medicine; and by M. Delorme, on behalf of the Société de Chirurgie, in all of which the admirable private and professional qualities that characterised the late Dr. Guinard were extolled. On first leaving St. Etienne, his home, Guinard said that within 30 years his address would be "Dr. Guinard, Surgeon of the Hôtel Dieu, Paris." This prediction was fulfilled, and this monument and the memory of his tragic end will henceforth be inseparable from the Hôtel Dieu. The monument shows a weeping woman offering a palm to Dr. Guinard.

Retirement of Professor Lacassagne.

Professor Lacassagne has retired. For thirty years he has occupied the chair of legal medicine at the University of Lyons. His researches have made him universally renowned, and the scientific world pays him homage on his retirement. To him it is due that the responsibility of half-witted criminals is now more justly and properly appraised. He has helped to strengthen the defences of society. Legal medicine has become through him, and through those who have followed the path he marked out, a science indispensable to the life of a country. The teaching of Lacassagne covers a vast field, but the following axioms sum up its principal doctrines:—Every action injurious to the community is a crime; every crime is an obstacle to progress; the social *milieu* is the culture fluid of criminality; the microbe is the criminal, a factor of small importance apart from the culture fluid which permits it to ferment; and society has only the criminals that it deserves.

The Medical Examination of Motor-car Drivers.

Mr. Bernard Augé has introduced a Bill into the Chamber of Deputies requiring every motor-car driver to append to his application for a licence a medical certificate certifying that he has a good constitution, normal eyesight and hearing, and that he has no organic lesion of the heart, pleural cavity, or kidneys, which could render him liable to sudden syncope; also to establish, as far as possible, his freedom from any neuropathic affection, monomania, hysteria, or epileptic taint. M. Augé thinks that the causes of numerous accidents remain unexplained. The ordinary record of accidents does not show whether excessive speed depends on the character of the wet surface, on a false manœuvre, or on the sudden illness of the chauffeur. M. Augé thinks it probable that in a large number of cases the chauffeur's state of health is at fault. The condition of health has not hitherto been taken into account in granting a certificate of fitness.

July 1st.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

The Carnegie Foundation and Medical Schools.

THE report that the Carnegie Foundation would use its enormous fund, said to amount to $140,000,000, to crush sectarianism in medical colleges has been renewed since the announcement of Mr. Carnegie's gift of $1,000,000 to the medical school of Vanderbilt University. Dr. Henry S. Pritchett, head of the Foundation (who with Mr. Abraham Flexner in a recent report stigmatised as worthless some of the American medical schools), while denying any animosity against sectarian colleges as such, says that an investigation may be held into the worthless medical schools that trade on the names of worthy institutions under whose charters they take refuge. It is hinted that men in an official capacity in the colleges concerned reap large profits from the commercialised medical schools. The somewhat sweeping reports of the Carnegie Foundation on American medical schools already have had good effects. Some of the inferior schools criticised in it have gone out of existence; others have taken steps to improve their teaching facilities. The standard of medical education has been raised sensibly during the past decade, though there is yet much room for improvement.

Fund for Medical Education.

Mr. Andrew Carnegie has given £200,000 to the Vanderbilt University, Nashville, Tennessee, for the benefit of the medical department. £40,000 will be available at once to provide for the erection and equipment of new laboratories for the medical school, and the income from the remainder will be used for its maintenance.

Death of Dr. F. Forchheimer.

Dr. Forchheimer died in Cincinnati on June 1st. He was born in Cincinnati on Sept. 25th, 1853, studied at the Universities of Strasburg and Würzburg, and graduated in medicine at the College of Physicians and Surgeons, New York, in 1873. For 20 years he was professor of the theory and practice of medicine in the University of Cincinnati. He was president of the American Medical Association in 1910–11. Dr. Forchheimer was the author of several medical works, among which may be especially mentioned the "Prophylaxis and Treatment of Internal Diseases."

June 17th.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Accommodation and Treatment of Persons of Unsound Mind

IN April last a Select Committee of the House of Assembly was appointed to inquire into the adequacy or otherwise of the provision in the various Provinces of the Union for the accommodation and treatment of persons of unsound mind The committee has recently presented a report which is perhaps one of the most valuable Parliamentary reports that have been published in South Africa in recent years. The committee finds that the accommodation at present available in the asylums throughout the Union is quite inadequate to cope with the present demand for admission; that in many cases it is of a character most unsuitable for the mentally afflicted, and that overcrowding exists in most of the institutions to an extent which it is imperative to put a stop to without delay; that this state of affairs is most acute in the Cape Province, where asylum accommodation has been inadequate for many years; that reports by numerous departmental and other commissions and by many officials have been made to successive Cape Governments, but that no attempt has ever been made to deal with the matter in a comprehensive manner; that on account of the lack of accommodation it has become increasingly necessary to detain mental patients in police cells and in other unsuitable institutions, a practice which was condemned by all the witnesses, medical and lay, who appeared before the committee; and that in the other provinces the accommodation is generally of a suitable character but insufficient. The committee considers that in consequence of this lack of accommodation large numbers of persons who should be under treatment cannot be admitted, while others have frequently to be prematurely discharged before being cured. This has been the main cause of the administrative difficulties which have given rise to the frequent adverse criticisms in the public press. Further, it must be emphasised that the fact that so many insane and feeble-minded persons are at large constitutes a serious danger to future generations. The committee records its opinion that it will be more economical to maintain a small number of asylums accommodating between 800 and 1500 patients rather than a large number of small asylums each with 300 or 400 patients, as is the case at present in the Cape and Free State Provinces; and that the larger institutions, by rendering possible, *inter alia*, a proper classification of cases, would ensure more efficient administrative methods and increase the comfort, well-being, and chances of recovery of patients. Also, that there is no valid objection to the maintenance on the same asylum estate and under one administration of patients drawn from both the European and the coloured sections of the population, provided they are housed apart and are not brought into contact when undergoing treatment, or at meals or entertainments; but that, on the contrary, considerable economy can be expected, inasmuch as suitable coloured patients can be employed with advantage, both to the State and to themselves, on work on such estates, which in the ordinary way would be performed by hired coloured labour. It also considers that, with the exception of the Natal Act, the existing lunacy laws are on the whole adequate, and with suitable minor alterations should form a convenient basis for a uniform law for the Union. Among the more important recommendations of the committee are the following:—

(1) That as a matter of urgent necessity funds should be provided forthwith to relieve the present congestion, and to provide accommodation for the ordinary normal demand as well as a reasonable margin [illegible]

[illegible]

the appointment of a Commissioner in Lunacy and for local asylums boards.

With the recommendations contained in this report most practitioners will agree. It was sympathetically received by the House, and the Government announced its intention of carrying out the recommendations as soon as possible. But what one cannot agree to is the estimate of accommodation required furnished to the committee by the Department of the Interior. The Census report shows that the number of insane outnumber the available beds in the case of Europeans by 1066 and in the case of coloured patients by 2192, or for all races by 3278. The closing of the asylums at Robben Island, Port Alfred, and Fort Beaufort means a loss of 152 beds in the case of Europeans and 1208 beds in the case of coloured patients, or for all races 1360 beds. Assuming that these asylums are closed as recommended, there would apparently be a shortage in beds for Europeans of 1238, for coloured 3400, or altogether 4638. Yet all the accommodation proposed to be erected and spread over a three years' programme consists of an additional 703 European beds, 2870 coloured beds, or altogether 3573 beds. Now it is common knowledge that there are a very large number of insane persons, especially amongst natives, that have not been certified owing to the difficulty of disposing of the cases, and the bulk of these cases were not returned as insane in the Census report. Moreover, the scheme only contemplates provision for 16·6 per 10,000 inhabitants. Therefore, while expressing relief that considerable expansion in asylum accommodation is about to be provided, one cannot but express also the hope that the Government will not abandon the condemned asylums until it has satisfied itself that the present programme is sufficient, or that, if not sufficient, it will make the necessary additional provision accordingly. The expenditure recommended is £350,000 spread over a period of three years.

Proposed Hospital Ordinance, Orange Free State.

A Draft Ordinance to provide for the establishment and management of hospitals and charitable institutions in the Orange Free State has just been gazetted prior to its introduction into the provincial council of that province. The proposed measure is practically the same as that which became law last year in the Cape Province, but it has certain important differences. In the first place there is to be no medical representation on the boards or institutional committees. In the second place, owing to there being no rural local authorities in the Orange Free State as in the Cape, it has been found impossible to provide for the division of the deficits, if any, between the local authorities of the district and the Provincial Government in equal proportions. Instead, one-third is to be placed upon the municipalities of the district, and two-thirds is to be payable by the Provincial Government. This method of meeting the deficits will result in practice in the hospitals being supported entirely on deficits, one-third by municipalities, and two-thirds by the provincial administration, for there will be no advantage to be gained by a municipality in making an out-and-out grant to a hospital, as would be the case in the Cape Province. Indeed, it will be to the advantage of municipalities not to contribute anything until they are compelled to do so on the deficit, as by this means they will contribute a bare minimum. The medical profession should insist upon a modification of the Ordinance so as to secure proper representation. The Ordinance is not likely to encourage voluntary subscriptions to the same extent as that of the Cape owing to the fact that the method of liquidating deficits will leave the bulk of the expenditure to be defrayed by the Provincial Government.

June 1st.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Epidemics of Small-pox and Typhus Fever.

THESE diseases are always present in China, but reports from the northern and central provinces show that during the last three months they have prevailed over a very wide area in epidemic form. In this country small-pox is considered of little account, being regarded as one of the necessary ailments which everyone sooner or later must contract. No precautions are taken against the spread of the disease. Indeed, during this spring it has been a common experience in the Peking district to see children covered with the eruption playing in the streets. Even after death the younger victims of the disease may remain a menace to the health of the community, since it is often considered unnecessary to go to the expense and trouble of a proper funeral, the bodies of children being handed over to men of the beggar class who for a small consideration undertake to dispose of them. Instead of burying the corpses these men generally discharge their duty by going

EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

lementary Anatomy and Biology, Chemistry and Physics.—
nours, Second Class: William Duncan and Mordecai Jacob
dberg. Pass-list: Henry Hamilton Bailey, George Malayramon
rry, and Sadek Abdel Shehid.

emistry and Physics.—Percy Vernon Anderson, Norman Briggs,
mes Allan Berry, James Struthers Clark, Ernest Craig Dunlop,
muel Elijah Goulstine, Charles Gordon Irwin, and Harold Mason
ete.

lementary Anatomy and Biology.—John Neville Alexander,
alcolm Cyril Joynt, Peter Murphy, Freda Newman, and Harold
erne-Howitt.

OREIGN UNIVERSITY INTELLIGENCE.—
n: Dr. A. Czerny, the recently appointed University
ssor of Children's Diseases, has also been appointed
ssor in the Kaiser Wilhelm's Academy.—*Bordeaux:*
Duvergey has been appointed Professeur Agrégé of
ral Surgery, and Dr. Chelle Professeur Agrégé of
gical and Medical Chemistry.—*Catania:* Dr. Andrea
selli has been recognised as *privat-docent* of Internal
ology.—*Freiburg:* Dr. C. T. Noeggerath, of Berlin, has
appointed Extraordinary Professor of Pædiatry.—*Genoa:*
Antonio Calderara has been recognised as *privat-docent*
xternal Pathology.—*Göttingen:* Dr. O. Klieneberger, of
gsberg, has been recognised as *privat-docent* of Neurology
Psychiatry.—*Gratz:* Dr. R. Possek, *privat-docent* of
halmology, has been granted the title of Extra-
ary Professor, and Dr. Heinrich di Gaspero has been
gnised as *privat-docent* of Neurology and Psychiatry.—
: Dr. Gellé has been appointed Professeur Agrégé of
ological Anatomy.—*Lyons:* Dr. Cotte and Dr. Duroux
been appointed Professeurs Agrégés of General Surgery,
Dr. Savy Professeur Agrégé of Pathological Anatomy.—
ena: Dr. Eugenio Centanni, of Sienna, has been ap-
ted to the chair of General Pathology.—*Magdeburg*
lenburg Municipal Hospital): Dr. Voigt, of Strasburg, has
appointed Senior Physician to the Children's Depart-
t, in succession to Dr. Thiemich.—*Montpellier:* Dr.
nne has been appointed Professeur Agrégé of General
gery.—*Munich:* Dr. W. Heuck, of Bonn, has been recog-
d as *privat-docent* of Dermatology.—*Nancy:* Dr. Fairise
been appointed Professeur Agrégé of Pathological
tomy.—*Paris:* Dr. Auguste Broca, Professeur Agrégé,
been promoted to the chair of Operations and Appliances,
uccession to Dr. Hartmann; Dr. Alglave, Dr. Mocquot,
Dr. Desmarets have been appointed Professeurs Agrégés
General Surgery, and Dr. H. Labbé Professeur Agrégé of
lical and Biological Chemistry.—*Prague (German Uni-
ity):* Dr. Emil Starkenstein has been recognised as
at-docent of Pharmacology and Pharmacognosis.—
isburg: Dr. K. Stolte has been recognised as *privat-docent*
ædiatry.—*Toulouse:* Dr. Piquand has been appointed
fesseur Agrégé of General Surgery, and Dr. Florence
fesseur Agrégé of Pharmacy.—*Vienna:* Dr. Walter
mer has been recognised as *privat-docent* of Histology.

ONDON DERMATOLOGICAL SOCIETY.—The annual
ting of this society was held on June 18th, Dr. W.
wsley Sibley being in the chair. He gave a brief *résumé*
he work for the past year, and announced that the trans-
ons of the society would be posted to the Fellows in the
rse of a few days.—The old officers were re-elected, and
following added to the council—namely, Mr. A. T.
mner (Leicester), Dr. R. Prosser White (Wigan), and Mr.
G. Reeve (London).—Dr. S. Gooding showed cases of
us Erythematosus on the face of a woman, 27 years of age,
of the scalp in a woman, 35 years of age.—Mr. Bremner
ibited photographs of two cases of Scleroderma, the one
a boy, aged nine, which was associated with Leucoderma
Alopecia, and who got quite well again; the other in a
nan, aged 60, who had a diffuse symmetrical scleroderma
died. He then showed the case of a man, aged 24, who
on the left frontal region of the scalp a ribbon-like band
cleroderma with complete loss of hair.—Dr. Sibley showed
s of Lichen Planus with considerable pigmentation
patches of lichen hypertrophicus in a man, aged 40;
Lupus Erythematosus in a woman, 28 years of age, with
ked lesions on the face, ears, and fingers.—Mr. Reeve
a paper on the Treatment of Diseases of the Skin by
nsive Iodine Administration, and exhibited several cases
illustrate his observations.—After some remarks by
chairman, Dr. David Curle (Glasgow), Dr. White, Dr.
Bernstein, Mr. D. Vinrace, and Mr. H. C. Samuel joined
he discussion, and Mr. Reeve replied.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual general meeting of this society will be held on Friday, July 11th, at the West London Hospital, Hammersmith, at 5 P.M.

PRIZE FOR OPHTHALMOLOGY.—An anonymous donor has given 5000 francs for a prize for researches on iritis and cyclitis. The papers (which may be in English) are to be sent to the editor of the *Annales d'Oculistique*, 26, Boulevard Raspail, Paris, before August 15th, 1914.

CAMBRIDGE RESEARCH HOSPITAL.—The treasurers of the Cambridge Research Hospital have received the sum of £300 from Mr. G. Bidder, of Cambridge, for the purchase of an additional acre of land and a promise of £300 for current expenses from Mr. J. H. Wills, of Chiddingstone Castle, Kent.

MEDICAL GOLF PROWESS.—The eighth annual meeting of the Gloucestershire Golf Union was held at Minchinhampton on June 18th, when Dr. Alfred Brown, of Minchinhampton, won the local championship. The entry was a record one, and Dr. Brown played fine golf in both rounds.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—The annual meeting and launch party of this association will be held on Friday, July 11th, when the saloon launch *Empress of India* will leave Maidenhead Bridge for Henley at 12.15. Tickets, price 12*s.* 6*d.*, may be obtained from the honorary secretary, Dr. Arthur Haydon, 23, Henrietta-street, Cavendish-square, W.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on June 19th, with Sir Francis H. Champneys in the chair. A letter from the medical officer of health for Newport, Monmouthshire, asking the opinion of the Board as to whether a register of cases kept by more than one midwife in common should be so arranged as to distinguish the records of each individual midwife was further considered, and a letter was considered from the matron of the Monmouthshire Training Centre for Midwives on the same subject. The matron of the Monmouthshire Training Centre having expressed her willingness to distinguish the records of each individual midwife, the Board decided that the complaint of the medical officer of health for Newport (Mon.) had been met, and that a copy of her letter be sent to him. A letter was read from the honorary secretary of the Association of Inspectors of Midwives forwarding a copy of a resolution passed at the annual meeting of the association in April, 1913, with reference to the approval of midwives for the purpose of signing the certificates of practical training for candidates for the examination, and with reference to the form of the certificate of attendance on cases. The Board directed that the honorary secretary of the Association of Inspectors of Midwives be informed that the Board's rule is to hold every principal answerable for his or her subordinates. A letter was considered from the town clerk of Stoke-on-Trent urging the amendment of Section 5 of the Midwives Act, 1902, so as to provide for the assessment of contributions from local supervising authorities on some principle more equitable in operation than that arising from apportionment on the basis of the number of midwives giving notice of intention to practise in any given area. The Board directed that the town clerk of Stoke-on-Trent be informed that the Board has recommended the incorporation in the Amending Bill of a clause in accordance with the suggestion now made, and will not fail to support it by all means in its power. A letter was considered from the clerk of the Kent Insurance Committee calling the attention of the Board to a difficulty experienced by midwives in getting medical help in cases of emergency for women entitled to medical benefit. The Board directed that the Kent Insurance Committee be informed that the Board has no power over the assignment of fees under the National Insurance Act, and that the responsibility of advising medical aid is laid upon the midwife by the rules.—At a special meeting of the Board, held on June 26th, the names of four midwives were removed from the roll.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

National Insurance Act (1911) Amendment Bill.

THE text of the National Insurance Act (1911) Amendment Bill is now published. It consists of 13 clauses.

Clause 1 is designed to give statutory authority to the additional grant made at the beginning of the year for medical benefit.

Clause 2 deals with the abolition of reduction of benefits in certain cases. It runs:—

"(1) The rate of sickness benefit shall not be reduced in the case of an insured person *who became an employed contributor within one year* after the commencement of the principal Act by reason that at the date of so becoming an employed contributor he was of the age of fifty years or upwards, and accordingly subsection (3) of section nine and Table C in Part I. of the Fourth Schedule of the principal Act shall be repealed.

"(2) Part I. of the principal Act shall apply to persons who at the commencement of the principal Act were of the age of sixty-five or upwards and under the age of seventy, and to persons who have since the commencement of the principal Act attained or may hereafter attain the age of sixty-five in like manner as it applies to other persons, and accordingly subsection (4) of section one, paragraph (*a*) of subsection (4) of section four, and section forty nine of the principal Act shall be repealed.

"Provided that a person who is of the age of sixty-five or upwards at the time of entering into insurance shall not be entitled to medical benefit after he attains the age of seventy unless the number of weekly contributions paid by or in respect of him exceeds fifty.

"(3) This section shall come into operation at such date not later than the fourteenth day of January, nineteen hundred and fourteen, as the Insurance Commissioners may appoint, and the Insurance Commissioners may make such regulations as they may consider necessary for providing, in the case of any such classes as aforesaid, for the transition from the provisions of the principal Act affecting them to the provisions of that Act as amended by this section."

Arrears of contributions are dealt with in Clause 3.

Clause 4 relates to the benefits of exempted persons. It runs.—

"Regulations made by the Insurance Commissioners under subsection (4) of section four of the principal Act shall provide for applying the contributions paid in respect of persons who hold certificates of exemption in providing medical benefit and sanatorium benefit for such persons and the cost of the administration of such benefits, and such persons shall, if they fulfil such conditions as may be imposed by those regulations, become entitled to medical benefit and sanatorium benefit as if they were members of Approved Societies, and the provisions of the principal Act and this Act with respect to the payment and administration of those benefits (*including those relating to the application of moneys provided by Parliament towards the cost of those benefits and the expenses of the administration thereof*) shall, subject to any modifications, adaptations, and exceptions contained in the regulations, apply accordingly."

Medical benefit is dealt with in Clause 5, which reads thus:—

"(1) No voluntary contributor whose total income from all sources exceeds one hundred and sixty pounds a year shall be entitled to receive medical benefit, but in that case the weekly contribution which would otherwise be payable by him shall be reduced by one penny.

"(2) Paragraph (*e*) of subsection (2) of section fifteen of the principal Act shall extend to members of societies other than such Friendly Societies as are mentioned in that paragraph who were at the date of the passing of the principal Act entitled as such members to medical attendance and treatment in like manner and subject to the like conditions as it applies to members of such Friendly Societies."

The other clauses of the Bill deal with the following matters: Clause 6, sickness benefit; Clause 7, special provisions as to casual and intermittent employment; Clause 8, decision of disputes; Clause 9, extension of powers of Commissioners to make regulations; Clause 10, Joint Committee and Insurance Commissioners; Clause 11, offences and legal proceedings; Clause 12, revocation and amendment of Orders and extension of time for making Orders under Section 78 of the principal Act; and Clause 13, short title and construction.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 25TH.

National Insurance and Accidents.

Mr. THOMAS asked the Secretary to the Treasury whether he was aware that a number of doctors were refusing to attend an insured person who was prevented from following his employment through an accident, and was thereby excluded from the benefits of the National Insurance Act; and what steps he proposed to take to deal with this refusal to provide medical aid for insured persons.—Mr. MASTERMAN answered: I am not aware of any such case. If the honourable Member will give me any particulars I will institute immediate inquiries.

Certificates of Panel Practitioners.

Viscount DALRYMPLE asked the Secretary to the Treasury whether the panel doctors had contracted to specify in their certificates the actual nature of the disease of an insured patient, and whether the Approved Societies were entitled to withhold sick benefit if the actual disease was not so specified.—Mr. MASTERMAN wrote in reply: The panel doctors have contracted to furnish, at the request of the insured patient, such certificates as are required to be furnished by that person [illegible]

claims.

THURSDAY, JUNE 26TH.

Chemists and National Insurance.

Mr. ALDEN asked the Secretary to the Treasury whether he was [illegible]

end of the medical year. Advances have already been made in some cases up to 75 per cent. of the accounts rendered up to the end of last quarter, and I am not aware of any case in which payments have not [illegible]

Nursing under the National Insurance Act.

[illegible]

Infant Mortality.

[illegible] now being prepared by the Board, and I hope shortly to present it.

Islington Tuberculosis Dispensary.

[illegible]

Rosslare Sanatorium.

[illegible]

strikingly good results there. No inconvenience has arisen up to the present from the fact that the doctor is non-resident, but it is proposed to appoint a resident medical officer when the buildings now in course of construction are finished.

FRIDAY, JUNE 27TH.

Mental Deficiency and Lunacy (Scotland) Bill.

On the adjourned debate on the Mental Deficiency and Lunacy (Scotland) Bill,

Major **HOPE** welcomed the measure, believing there was urgent need for such legislation in Scotland both in the general interest of the community and on behalf of those for whom the Bill was primarily intended.

Sir H. **CRAIK** criticised the policy of making the school boards the responsible authority for the administration of the Bill. He would ask the Secretary for Scotland to consider whether it would not be much better to have *ad hoc* committees for the purpose as was proposed in the English Bill.

Mr. **DUNCAN MILLAR** thought that there was a general desire in Scotland for some such measure as the Bill, but he hoped further consideration would be given to some of the criticisms which had been directed to its provisions.

Mr. A. F. **WHYTE** considered that the school boards alone, in conjunction with the parents, were entitled to judge in the initial decision whether feeble-mindedness or not existed in the children.

After the closure had been carried by 180 votes to 75 the Bill was read a second time and referred to the Scottish Standing Committee.

Elementary Education (Defective and Epileptic Children) Bill.

Mr. J. A. **PEASE** (President of the Board of Education) moved the second reading of the Elementary Education (Defective and Epileptic Children) Bill. He explained that its purpose was to make universal and uniform the Act of 1899, which was only adoptive. The Bill would enable special schools to be created throughout the country with three objects: firstly, to enable all doubtful cases of feeble-mindedness in children to be properly diagnosed; secondly, to determine which of them were educable and which were not; and thirdly, to provide for those who were educable, industrial, manual, and practical training suitable to their varying capacities, and also train them in habits of good conduct and self-control. The Bill proposed to impose this duty on the local education authority. The work of special schools which at present were voluntary was not so effective as it might be if the Bill became law. However, the work now done in them was encouraging, and the fact that over 50 per cent. of the children found employment after leaving school and became almost self-supporting showed that a grand work was already being done in the direction of helping them to become useful citizens in after life. The Board of Education believed that there were 24,000 children in the country who ought to be sent to the special schools, and only half of them were in attendance at the present time. The Board of Education proposed that the existing grant of £4 4s. per head in respect of them should be increased to £6, and in the case of those sent to residential schools that it should be £12. The experiment of residential schools had proved encouraging. He recognised that it was important to secure the confidence of the parents in regard to sending their children to these schools.

Mr. **GOLDSMITH**, in moving the rejection of the Bill, agreed that permissive legislation had not been [illegible] of the education of the feeble-mindec [illegible] must be made. But it would be mos [illegible] the Mental Deficiency Bill became law, because then there would be two sets of institutions dealing with mental defectives. One of these sets was to be under the Board of Control and the other under the Board of Education. It seemed to him to be most important that these institutions ought to be under one set of local authorities and one central authority.

The honourable Member was addressing the House when the debate was adjourned.

MONDAY, JUNE 30TH.

Panel Practitioners in London.

Sir J. D. **REES** asked the Secretary to the Treasury whether his attention had been called to the fact that a large number of medical men on London panels were advertised as being available for patients at more places than one at one and the same time, whereas Regulation B (2) (a) of Dec. 5th, 1912, required that the lists of such panel doctors should contain particulars of the days and hours at which they undertake to be in attendance at each place; and, if so, what action he proposed to take to ensure compliance with this condition.—Mr. **MASTERMAN** answered: I am informed by the London Insurance Committee that with the exception of three misprints, which will be corrected in the revised edition of the list about to be published, the cases referred to in the honourable member's question are cases in which the doctors concerned are either in partnership with other doctors on the panel, or have engaged assistants. In these cases the particulars given include not only the hours at which these doctors can be seen personally, but also the consultation hours of their partners or assistants.

Local Medical Committees in the Metropolis.

Mr. **WORTHINGTON EVANS** asked the Secretary to the Treasury whether he would say why the Local Medical Committees formed for the boroughs of Poplar and Stepney, who had applied for recognition under Section 62 in April last, had not had any reply to their application; whether the District Insurance Committees were now transacting business without the presence of direct representatives of the medical profession in Poplar and Stepney; and whether, in view of the fact that the District Committees had to draw up schemes for allotment of patients, the Commissioners would ensure that the medical profession should be represented thereon.—Mr. **MASTERMAN** replied: The question of recognising a Local Medical Committee for the whole county as well as Local Medical Committees for the different metropolitan boroughs is receiving the careful consideration of the Commissioners, but they are at present unable to recognise any Local Medical Committee either for the whole county or for the different boroughs as properly representative of the doctors resident in the respective areas.

The Treatment of Tuberculosis.

In answer to Mr. **JOHN WARD**, Mr. **MASTERMAN** said: I am not aware of any Insurance Committees who have failed to make proper provision for the treatment of insured persons suffering from tuberculosis. A return has been laid showing that up to April 30th last over 19,000 had received sanatorium benefit, 10,239 of whom have been treated in sanatoria and other residential institutions.

Experiments on Living Animals.

Mr. **LYNCH** asked the Secretary of State for the Home Department whether he could state the number of establishments in this country licensed for vivisection purposes or for research work involving experiments on living animals; how many persons were now in possession of licences and certificates authorising them to perform such experiments; how many dogs were employed for this purpose during 1912; what proportion this bore to the total number of animals so employed; and when the annual return of vivisection experiments would be published.—Mr. **MCKENNA** answered: The [illegible] Great Britain is 109. The number of [illegible]. Most of the holders of licences als [illegible] The total number of experiments performed during 1912 was 83,699. I cannot give the exact number of experiments on dogs, but 888 experiments were performed under the certificates which allow experiments on dogs or cats, but the returns do not show how many there were on either kind of animal. In addition to these some of the 2584 experiments performed under licence only, without certificates, may have been experiments on dogs. The annual return is almost ready for publication, and will, I hope, be issued shortly.

TUESDAY, JULY 1ST.

Sir Victor Horsley and the Home Secretary.

Mr. **FRED HALL** (Dulwich) asked the Secretary of State for the Home Departr [illegible] the result of his communication to the Ro [illegible] ngland as to the charges made by Sir Victor [illegible] he treatment of Miss Lilian Lenton while in prison; and, if so, whether he would submit the terms of his communication and the reply thereto in order to afford the House an opportunity of drawing its conclusions with regard to the grounds on which he addressed his complaint to the College of Surgeons.—Mr. **MCKENNA** replied: If the honourable gentleman will move for the correspondence I shall be glad to lay it on the table of the House.

Highlands Medical Service Grant.

Mr. **MORTON** asked the Secretary to the Treasury whether he can now say when the Bill dealing with the special Highlands and Islands medical service grant (£42,000 per annum) would be introduced; and whether he was aware that the Scottish members were anxious that he should adhere to the promise made when the deputation of Scottish Members waited upon him some weeks back as to the authority to administer the grant.—Mr. **MASTERMAN** answered: I hope that it will be possible to introduce the Bill at a very early date. The answer to the last part of the question is in the affirmative. The proposals contained in the Bill will be framed on that basis.

Epidemic in St. Kilda.

Replying to Mr. **JAMES HOGGE**, Mr. **MCKINNON WOOD** (Secretary for Scotland) said: The medical officer of the Local Government Board for Scotland who went to St. Kilda reports that the epidemic of influenza there is practically over and that before he left the island he satisfied himself that all the patients were convalescent.

WEDNESDAY, JULY 2ND.

Medical Referees and Industrial Diseases.

Mr. **STEEL-MAITLAND** asked the Secretary of State for the Home Department whether power was given to the medical referee in cases of industrial disease to consult any doctor who had previously had the case under consideration on his own initiative, without any application to that effect necessarily having been made by the parties themselves.—Mr. **MCKENNA** replied: The Regulations require that the Referee shall, before deciding on the matter referred to him, make a personal examination of the workman, and shall consider any statements made or submitted by either party. There is nothing in the regulations to prevent the Referee, if he should think it necessary, consulting any medical man who has previously had the case before him, but it would be a matter entirely for his own discretion.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B. ET FILS, Paris.

Traité du Sang. Publié sous la Direction de MM. A. Gilbert, Professeur de Clinique Médicale à l'Hôtel-Dieu de Paris, Membre de l'Académie de Médecine, et M. Weinberg, Chef de Laboratoire à l'Institut Pasteur. Secrétaire de la Rédaction: M. le Dr. Boidin. Avec le Collaboration de MM. Achard, Aubertin, Aynaud, Baudouin, Billet, Boidin, Bordet, Breton, Calmette, Chabrol, Chauffard, Dopter, N. Fiessinger, Foix, Gengou, Gilbert, Herscher, Jeantet, Jonesco-Michaiesti, De Jong, Jouan, Lebœuf, Léger, Mesnil, Mouton, Nicloux, Nicolle, Noguchi, Nolf, Pappenheim, Parturier, Philibert, Pinoy, Ribierre, Ch. Richet, Ch. Richet fils, Rubens-Duval, Sabrazès, Sacquépée, Sicard, Tarassévitch, Thoinot, Tiffeneau, Tixier, J. Troisier, M. Villaret, Vincent, Weidenreich, P. É. Weill, Weinberg, Widal. Tome Premier. (*Le tome II. paraîtra en Octobre.*) *Prix, en souscription*, Fr.42.

CHURCHILL, J. AND A., London.

Therapeutic Clinic of the Paris Faculty of Medicine, Beaujon Hospital, Endowed by the Duc de Loubat. Treatment of Tuberculosis. Ordinary Therapeutics of Medical Men. By Albert [illegible] l Therapeutics at the Paris Faculty of [illegible] Academy of Medicine. Translated by [illegible] at Aix-les-Bains; Physician to the Hospital, with the Assistance of H. de Méric, Surgeon to the French Hospital, London. Price 18s. net.

Surgical Pathology and [illegible] Sir Anthony A. Bowlby, C.M.G., F.R.C [illegible] to His Majesty the King and to St. [illegible] Sixth edition. Edited with the assistance of [illegible] Lecturer on Pathology at St. Bartholomew's [illegible] in the University of London. Pr [illegible]

Treatise on General and Industri [illegible]

[illegible] Society [illegible] f Merce- [illegible] Milan. [illegible] Edition [illegible] Malting [illegible]

CONVALESCENT HOMES ASSOCIATION, 14, Victoria street, London, S.W.
Convalescent Homes Association. List of Convalescent Homes and *Sanatoria Receiving London Patients. (With Full Particulars of* the Terms of Admission, &c.). Second (revised) Edition. Price 1*s*.

DEUTICKE, FRANZ, Leipzig und Wien.
[illegible] Dienste [illegible] Victor [illegible] Wien. [illegible]

ENKE, FERDINAND, Stuttgart. F. BAUERMEISTER, 19, West Regent-street, Glasgow.
[illegible] Von Dr. Adam Politzer, Em. o. ö. [illegible] der Wiener Universität. Zwei [illegible] Unter Mitwirkung bewährter [illegible]

FISCHER, GUSTAV, Jena.
Jenaer medizin-historische Beiträ[illegible] Theod. Meyer-Steineg. Heft 4. [illegible] des römischen Architekten Vit[illegible] Hygiene. Von Dr. med. Albert [illegible] Price M. [illegible]

Appointments.

Succ[illegible] *tions,* [illegible] *are* [illegible] *Sub-* [illegible] *each* [illegible]

[illegible]

Hospital.

O'BRIEN, W., M.B., Ch.B. N.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Aughrim District of [illegible]

[illegible] has been [illegible] pointed [illegible] pointed [illegible] been [illegible] rkshop [illegible]

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BAN[illegible] £100 per [illegible]

BEL[illegible] Resident [illegible] months. [illegible] with board, residence, &c.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. [illegible]

[illegible] ARY.—Second Assistant [illegible] Also Third Assistant [illegible] Each with apartments, [illegible]

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary [illegible]

B[illegible] PITAL.— [illegible] annum, [illegible]

B[illegible] months, [illegible] lodging, and washing.

B[illegible] Tuberculosis Medical Officer. Salary [illegible]

[illegible] CHILDREN AND WOMEN.—Junior [illegible] annum, with board, residence, [illegible]

BRISTOL ROYAL INFIRMARY.—Obstetric and Ophthalmic House Surgeon for six months. Salary £75 per annum, with apartments, board, and laundry.

[illegible] of Health. [illegible]

[illegible]—Resident [illegible] with board, [illegible]

[illegible] ich, S.E.—Locum Tenens for four weeks. Salary at rate of 6 guineas weekly, [illegible]

[illegible]—House Surgeon and Second [illegible] Salary £80 each per annum, [illegible]

[illegible] on, S.W.—Senior and Junior *House Surgeons, each for six months. Salaries £80 and £70 per* annum respectively.

CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Junior Assistant Medical Officer, unmarried. Salary £220 per annum, with apartments, attendance, laundry, &c.

CANTERBURY MENTAL HOSPITAL, Canterbury.—Assistant Medical [illegible] lodging, [illegible]

CAR[illegible] for six [illegible]

CHA[illegible] £100 [illegible]

CHE[illegible] married. Salary £100 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

[illegible] ance, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon, unmarried. Salary at rate of £75 per annum, with board and laundry.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

DOV[illegible] Male [illegible] annum, [illegible]

DU[illegible] Medical [illegible] light included

DUBLIN, ROYAL COLLEGE OF SURGEONS IN IRELAND.—Professor of Anatomy.

DUMFRIES A[illegible] t House Surgeon.

DURHAM COU[illegible] Medical Officers, un[illegible] ing, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, [illegible]

[illegible] £120 per annum.

HASTINGS, EAST SUSSEX HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

Hereford County and City Asylum.—Assistant Medical Officer unmarried. Salary £155 per annum, all found except stimulant.

Hitchin, Three Counties Asylum.—Junior Assistant Medical Officer. Salary £200 per annum, with board, apartments, washing, and attendance.

Hospital for Consumption and Diseases of the Chest, Brompton.—House Physician for six months. Salary 30 guineas.

Ipswich, East Suffolk and Ipswich Hospital.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

Johannesburg, Johannesburg Hospital, South Africa.—Non-resident X-Ray Medical Officer. Salary £750 per annum.

King's College Hospital.—Sambrooke Medical Registrar. Also Assistant Radiographer.

Lancaster County Asylum.—Locum Tenens Assistant Medical Officer. Salary £5 5s. per week, with board, lodging, and attendance.

Leeds General Infirmary.—Resident Medical Officer at Ida and Robert Arthington Hospitals. Salary £60 per annum. Ophthalmic House Surgeon. Salary £50 per annum. Also Two House Physicians without salary, but all with board, residence, and laundry.

Leeds Public Dispensary.—Junior Resident Medical Officer. Salary £100 per annum, with board and residence.

Leicester, Leicestershire and Rutland Lunatic Asylum, Narborough, near Leicester.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, board, and washing.

Lincoln Mental Hospital, The Lawn, Lincoln.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, &c.

London Hospital, Whitechapel-road, E.—First Assistant to Dr. James Mackenzie in the Cardiac Department for six months. Salary at rate of £300 per annum. Also Assistant Physician.

London Lock Hospital.—Female Hospital: House Surgeon and Assistant House Surgeon. Salary £100 and £80 per annum respectively, with board, lodging, and washing.

Lowestoft Hospital.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, residence, and laundry.

Maidstone, Kent County Asylum.—Fourth Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, attendance, washing, &c.

Manchester Medical Mission.—Part or Whole-time Medical Officer.

Metropolitan Hospital, Kingsland-road, N.E.—House Surgeon and Assistant House Surgeon for six months. Salary at rate of £60 and £40 respectively, and each with board and washing.

Newark-upon-Trent Hospital and Dispensary.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

Northampton, St. Andrew's Hospital for Mental Diseases.—Third Assistant Medical Officer. Salary £200 per annum, with apartments, board, and washing.

Norwich, Norfolk and Norwich Hospital.—House Surgeon and Casualty House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

Peterborough Infirmary.—House Surgeon, unmarried. Salary at rate of £120 per annum, with residence, board, and laundry.

Plymouth, South Devon and East Cornwall Hospital.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

Portsmouth Royal Hospital.—House Physician for six months. Salary £80 per annum, with board, &c.

Preston County Asylum, Whittingham, Lancs.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.

Queen's Hospital for Children, Hackney-road, London.—House Physician for six months. Salary at rate of £80 per annum, with [illegible] House Surgeon. Salary £100 per [illegible] washing.

Royal College of Surgeons of England.—Examiner in Physiology. Also Examiner in Dental Surgery.

Royal Dental Hospital of London, Leicester-square, W.C.—Anæsthetist. Salary £50 per annum.

Royal Eye Hospital, Southwark, S.E.—Junior House Surgeon for six months. Salary £50 per annum, with board and residence. Also Clinical Assistants.

Royal Free Hospital, Gray's Inn-road, W.C.—Ophthalmic Surgeon.

Royal Hospital for Diseases of the Chest, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing

Royal Naval Medical Service.—Twenty-five appointments.

St. Albans, Herts County Asylum, Hill End.—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and washing.

St. Giles and Bloomsbury Infirmary, Parishes of, Cleveland-street, Fitzroy-square, W.—Medical Superintendent. Salary £300 per annum, with residence, light, fuel, washing, and attendance. Also Assistant Medical Officer. Salary £150 per annum, with board, lodging, washing, and attendance.

St. Mary's Hospital for Women and Children, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

Salisbury General Infirmary.—House Surgeon, unmarried. Salary £100 per annum. Also Assistant House Surgeon, unmarried. Salary £50 per annum. Each with apartments, board, and lodging.

Sheffield, East End Branch of the Children's Hospital (Out-patient Department).—House Surgeon. Salary £75 per annum, with board and lodging.

Sheffield, Jessop Hospital for Women.—Assistant House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

Sheffield Royal Hospital.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

Sheffield Royal Infirmary.—Two Resident Medical Officers. Salary £70 per annum, with board and residence.

South Africa, Lunatic and Leper Asylum Service.—Three Junior Medical Officers. Salary £280 per annum, with board and lodging.

Southampton, Free Eye Hospital.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

South Shields Union Workhouse Infirmary and Cottage Homes.—Medical Officer. Salary £300 per annum, with rations, apartments, and attendance. Also Female Assistant Medical Officer. Salary £130 per annum, with rations, attendance, and apartments.

Southwark Union Infirmary, East Dulwich Grove, S.E.—Assistant Medical Superintendent. Salary at rate of £150 per annum, with board, lodging, and washing.

Staffordshire Education Committee.—Assistant School Medical Officer. Salary £250 per annum.

Stirling District Asylum, Larbert.—Junior Assistant Medical Officer. Salary [illegible]ard, lodging, and laundry.

Stoke-on-Trent, [illegible] Infirmary, Hartshill.—House Surgeon [illegible]n, with apartments, board, and washing.

Sunderland Royal Infirmary.—House Physician and Two Junior House Surgeons. Salaries £80 per annum, with board, residence, and laundry.

Swansea General and Eye Hospital.—House Surgeon. Salary £75 per annum, with board, washing, and attendance.

Truro, Royal Cornwall Infirmary.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

University of London, King's College.—Demonstrator in Department of Anatomy. Salary £100 per annum.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—House Physician and House Surgeon for six months. Salary £40, with board, lodging, and laundry.

Virginia Water, Surrey, Holloway Sanatorium Hospital for the Insane.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, laundry, and attendance.

Walthamstow Urban District Hospital for Infectious Diseases, Chingford.—Resident Medical Officer. Salary £150 per annum, with rooms and board.

Warrington, Lancashire County Asylum, Winwick.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.

Warwick Asylum.—Assistant Medical Officer, unmarried. Salary £175 per annum, with board, residence, and laundry.

West Bromwich and District Hospital.—Assistant Resident House Surgeon and Anæsthetist, unmarried. Salary £75 per annum, with board, residence, and washing.

West-End Hospital for Diseases of the Nervous System, Paralysis, and Epilepsy, 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £120 per annum.

West Ham Union Infirmary, Whipps Cross-road, Leytonstone, N.E.—Third Assistant and Fourth Assistant Resident Medical Officer. Salaries £130 and £120 per annum respectively, with usual residential allowances.

Whitechapel Union Infirmary, Vallance-road, E.—Second Assistant Resident Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

Whitehaven and West Cumberland Infirmary.—Resident House Surgeon. Salary £120 per annum, with board and lodging.

Wolverhampton and Staffordshire General Hospital.—House Surgeon. Salary £100 per annum, with board, rooms, and laundry. Also Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

Worcester General Infirmary.—House Physician. Salary £120 per annum, with board, residence, and washing.

York Dispensary and Maternity Hospital.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

The Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Colwyn Bay, in the county of Carnarvon; and at Axminster, in the county of Devon.

Births, Marriages, and Deaths.

BIRTHS.

Butler.—On June 24th, at Goldhawk-road, London, W., the wife of J. A. Butler, M.D., of a daughter.

Derham-Reid.—On June 29th, at Auchinellan, St. Helen's-road, Bolton-le-Moors, the wife of James Derham-Reid, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

Grisewood.—On June 24th, at Egremont, Cheshire, to Captain and Mrs. A. E. Grisewood, I.M.S., a son.

Woodward.—On June 28th, at Kingston Bagpuize, Abingdon, to Dr. and Mrs. Woodward, a son.

MARRIAGES.

Linton—Asquith.—On June 24th, at St. James's, Piccadilly, Stanley Fox Linton, M.B., B.Sc., of Scarborough, to Mary Pemberton Asquith, younger daughter of the late T. W. Asquith, of Harperley Hall, County Durham.

DEATHS.

Cross.—On June 30th, at Calstock, Moss-lane, Pinner, John Cross, M.D. Cantab., formerly of Regent's Park, London.

Maclaren.—On June 17th, at Keswick, Roderick Maclaren, M.D., of Carlisle, in his 69th year.

Willett.—On June 30th, at Wyndham Croft, Turners Hill, Sussex, Alfred Willett, F.R.C.S., Consulting Surgeon to St. Bartholomew's Hospital, aged 76 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHOLERA AND PLAGUE NOTES

N the Philippine Islands no case of cholera has been reported since 1911, but during June, 1912, two cases of plague were reported in Manila, these being the first cases in the Philippines, in human beings, for a period of over six years, and in rats for a period of five years Immediately sanitary steps were taken and active rat-catching measures begun, and by the end of the year, although 49 cases and 42 deaths had occurred meanwhile, the prevention of any spread of the disease seemed assured, as all the cases occurred within a radius of ten blocks of houses in one district of Manila, and no new cases appeared at the end of the year In July a case appeared in Iloilo, and preventive measures were at once taken with similar success to that achieved in Manila, while careful outgoing quarantine measures were carried out at both places with the view of preventing the spread of the disease to other places in the islands It is supposed that the infection was imported direct from China or Japan

In the consular district of Shimonoseki, Japan, an epidemic of cholera (imported from Shanghai) began in August, 1912, and lasted until November 1083 cases were reported and 696 deaths The total population of the district is about 5 500,000, which includes only some 55 British subjects

Mr P Stevens British Consul at Batoum writes —

> This district was less overrun by serious sickness during 1912 than in previous years, and the cholera experienced for several consecutive years up to 1911 was absent Plague, however, again appeared in the eastern steppes of the government of Astrakhan, and the disease was also noticeable on the confines of the province of Kuban and the borders of the government of Stavropol In the first-named locality the mortality from plague is reported to have been considerable and the whole district stricken had to b com pletely isolated in order to prevent the disease from spreading In the second two localities only a few isolated cases occurred As plague also appeared in Central Asia in 1912 the Russian Government has adopted measures of precaution for fear of an outbreak in the Caucasus in 1913 Accordingly, 42 plague stations have been opened in the government of Elizabetpol 7 in the government of Erivan, 20 in the province of Kars and 1 in the district of Zakatal

THE UNIVERSITY OF HONG KONG

HE University of Hong Kong, which was referred to in our correspondent's Notes from China in THE LANCET of Sept 17th, 1910, came into existence on March 30th, 1911, and its prospectus for the academic year 1913-14 is before us and forms very interesting reading From the very opening of the registers all the available residence accommodation was taken up—not only that in the hostel provided by the University itself, but also those established by the various missions, the regulations of which are essentially the same, and, in point of fact, one of them was compelled to extend The site comprises an area of 709,789 square feet, elevated 200 feet above the sea, and overlooking the city of Victoria and accommodates the main building, quarters for the staff, the University hostel, and the anatomical school The main building contains the great hall 80 by 50 feet), 11 class rooms, eight laboratories and workshops, libraries, common room for students, offices servants' quarters &c Its educational standard is that of the University of London, and external examiners of standing will conduct the final degree examinations The period of study is four years of three terms each in arts and engineering and five years in medicine His Majesty the King is the patron of the University, and His Excellency Sir Francis Henry May, K C M G, the Chancellor The Dean of the Faculty of Medicine is Dr Francis Clark All candidates for a medical (as for other) degree must matriculate in the University, or be exempt therefrom in virtue of having passed certain recognised equivalent examinations The subjects of the matriculation examination are English, Latin, or classical Chinese, or other classical Oriental language, mathematics, and one of the following Greek, French German, a modern Chinese dialect, or other modern language At the opening of the University last year the teaching staff of the Hong Kong College of Medicine became lecturers in the Faculty of Medicine of the University They are Anatomy, Dr G H L Williams and Dr C M Heanley, Physiology and Biology, Captain D Arthur, I M S, Chemistry, Mr A C Franklin, Physics, Mr T H Matthewman, Pathology and Bacteriology, Mr H Macfarlan Medical Jurisprudence Dr Francis Clark, Public Health Dr W W Pearse, Materia Medica and Therapeutics, Dr O Marriott, Midwifery and Gynæcology, Dr C Forsyth, Medicine Dr G P Jordan Dr F T. Keyt, and Dr C W M Kenny, Surgery Dr W. V M Koch and Dr R Maclean Gibson The two professorships of anatomy and of physiology and biology have not yet been filled There are well-equipped laboratories for the study of the preliminary and ancillary sciences while clinical teaching is supplied by the Tung Wah Hospital (250 beds) and the Nethersole and affiliated hospitals (100 beds) The sanitary department of the colony affords excellent material for the study of preventive medicine For the degrees of M B, B S, which must be taken conjointly, there are four examinations The degree of Doctor of Medicine will not be conferred until five years after the M B, B S, and involves an examination in medicine and one of the following subjects public health, medical jurisprudence, pathology, bacteriology midwifery, tropical medicine The Faculty of Medicine has several scholarships varying in value from $70 to $150 a year In every second and third year one of the King Edward VII scholarships of £40 will be awarded in the Faculty of Medicine The University fees are $300 tuition fees, and $240 board and lodging annually These with books laboratory, and other expenses bring the yearly cost up to about $650 The enthusiastic interest of the Chinese, both statesmen and private persons, and not only of those who are resident in the British colony of Hong Kong, but in Chinese communities generally, is of good augury, and the new University bids fair to perform an important service not only to the spread of learning, but also to the strengthening of the comity of nations and "the development and formation of character of students of all races nationalities, and creeds

THE PLAGUE IN PERSIA

IN the annual report of the British Vice Consul, Mr H G Chick, it is stated that the business life of Bushire received a severe set back early in 1912 from a reappearance of the epidemic of plague Quarantine restrictions are strict, and plague was unknown at Bushire before 1910, when a short epidemic resulted in 46 deaths but attracted little notice In the spring of 1911 a severer outbreak, lasting to June, carried off 98 persons and seriously alarmed the population, many of whom left the district When, therefore, plague reappeared early in February, 1912 and speedily assumed severe proportions, a general exodus of inhabitants followed The quarantine authorities endeavoured to combat the epidemic and relieve anxiety by urging the people to present themselves for inoculation, and up to a certain point were successful, over 4000 inoculations being made amongst whom very few fatal cases occurred The epidemic lasted till the middle of June the number of cases reported being 965 and the number of deaths 729, or 75 per cent The highest mortality in one week was 122 In Bushire, a town of 20 000 inhabitants and the total population of the island about 25 000, such a heavy sickness and mortality naturally brought nearly all business to a standstill During March, April, and May it is calculated that over 8000 people left the town and either went into the interior or to villages along the coast or to Basra Baghdad, and the Shiah holy places From April to May the bazaars, except for provisions remained almost entirely closed and no business could be done by importers Many of those who fled have not returned and the whole population was at the time the Vice-Consul wrote his report, awaiting anxiously to see whether the epidemic would return in 1913 Should it do so a general exodus is expected (As stated in THE LANCET of June 14th (p 1697), during April and up to May 10th 25 cases and 22 deaths were recorded) Plague also penetrated inland to villages about 30 miles distant

A PHARMACIST'S SUCCESSFUL ACTION FOR LIBEL

Mr W A Gibson, carrying on business at Brighton, where he is governing director of the firm of W A Gibson, Limited, druggists brought an action for libel against the *Daily Express*, the settlement of which was recently announced in court before Mr Justice Bailhache The plaintiff based his claim upon a paragraph in the defendant newspaper in January of this year at the time when the death of young Mr Trevanion at Hove from veronal poisoning was attracting great attention, and when the question of the possibility of the overdose being taken accidentally was of interest, as well as that of the ease with which veronal might be obtained The paragraph stated that Mr Trevanion obtained veronal in cachets from London and also from the plaintiff's firm and proceeded "He (Trevanion) would sometimes buy large quantities Mr Gibson said, "but there is nothing in that, for it was put up in cachet form, which makes it easy to determine the exact dose Veronal is regarded as an eminently safe drug for those who suffer from insomnia and it would require an enormous dose to have harmful effects' As a matter of fact, Mr Gibson not only had not made the foolish and mischievous observations thus ascribed to him, but had had no conversation upon the subject of Mr Trevanion's habits with any representative of the *Daily Express*, and the opinions imputed to him were so far from being his that as a member of the Pharmaceutical Society he had himself taken part in getting veronal scheduled as a poison Naturally the paragraph quoted occasioned him much personal annoyance, in addition to which it laid him open to receive from strangers medical men and laymen letters upbraiding him for the statements which on the authority of the defendant paper he was supposed to have made In the circumstances the *Daily Express* took the correct course of withdrawing with apologies the matter complained of, and at the same time paid the plaintiff an agreed sum by way of compensation, with the cost of the legal proceedings taken by him in defence of his reputation. In comment it may be pointed out that a great deal is often published in connexion with sensational incidents of the kind referred to above which ought not to appear at a time when it is quite uncertain what course the law may take. It is unfair to any man, either with or without his knowledge and consent, to saddle him with statements of any kind upon matters as to which he may be called on to give evidence, and any man invited to say anything to the representative of any newspaper will, if he is sensible, refuse politely but absolutely to open his lips. Mr. Gibson is to be congratulated both upon not having said what was ascribed to him and not having been interviewed.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to a page in the weekly edition of the *Yorkshire Post*, where, in describing a tennis tournament at St. Anne's-on-Sea, my name is prominently mentioned and pointed reference made to my work.

I desire to disclaim all responsibility for this. My name appears without my consent, either actual or by implication, and entirely without my knowledge. I am, Sir, yours faithfully,

St. Anne's-on-Sea, June 30th, 1913. H. MERRALL, M.B. Vict.

ST. HELENA HEALTH REPORT.

ACCORDING to the St. Helena Blue-book for the year 1912, just received at the Colonial Office, the estimated civil population on Dec. 31st amounted to 3519. To this must be added the Royal Marine detachment and crews of shipping in the port, bringing up the total to 3772. The birth-rate for the year in the civil population worked out at 28·4 per 1000, and the death-rate at 12·5 per 1000 (as against 10·9 in 1911). Of the 44 deaths 20 were those of persons over the age of 70, one of whom had reached the age of 93. The general health of the island during the year was good. The increased death-rate was mainly due to deaths from old age. On the other hand, the infant mortality rate was only 9·61 per 1000, calculated on the number of registered births—a marked decrease on the previous year. There were no deaths from zymotic disease. An outbreak of scarlet fever occurred in the latter part of the year. The disease first appeared in August, and, owing to the prompt and stringent measures taken to prevent dissemination, was for a long time confined to Jamestown. All cases were isolated in the military hospital, which was specially set apart for the purpose, and all infected material and buildings were thoroughly disinfected. Latterly, however, one or two cases appeared in the western country districts. Up to the end of the year the total number of cases amounted to 31. Most of these were of a mild type, and no deaths occurred. It has been impossible to trace the origin of the outbreak, the last instance having occurred in 1903.

There were 167 admissions to the hospital during the year, as against 157 in 1911. There were 9 deaths—a percentage of 5·3—as compared with 4 deaths and a percentage of 2·5 in 1911. There has been no change in the nursing staff, and Miss Hart has continued to show her usual zeal and devotion to her duties as lady superintendent—a position of exceptional difficulty and responsibility in this colony.

The mean temperature during the year was 61·60° F. at the meteorological station, Hutt's Gate, and 72·4° at Jamestown. The total rainfall was 44·340 inches at Hutt's Gate (an increase of 12·59 inches over 1911, which was an exceptionally dry year) and only 9·21 inches at Jamestown.

THE TREATMENT OF OBESITY.

IN reply to a medical correspondent from India we have nothing to add to the suggestions usually made in text-books of treatment. The general principles are to diminish the intake of fats and carbohydrates, to restrict the amount of fluid taken, and to promote loss by careful exercise. In regard to drugs, the chief ones employed are aperients and thyroid extract, but the latter requires care, and in general it may be said that dietetic treatment is the safest and most reliable.

WANTED—A HOME.

A MEDICAL correspondent, who is no longer in active practice, would be much obliged if any reader of THE LANCET could tell him of a home suitable for a retired bank clerk, aged 65, with fatty degeneration of the heart. The patient and his wife are dependent on a pension of £140 per annum, out of which they are prepared to contribute a small sum towards his maintenance.

STRATHPEFFER SPA.

WE have received a copy of a small book which describes the medical applications of the waters of Strathpeffer, as well as certain accessory methods of treatment which have been adopted at this well-situated health resort. The four articles comprising the book are contributed by local physicians. As one of the writers, Dr. W. Bruce, observes, a great responsibility lies with the practitioner who recommends his patients to have recourse to a particular spa, but he is obviously helped by an honest statement of the therapeutic claims of any individual watering-place made by those who are entitled to give such an opinion. This, we believe, correctly explains the motive of the book. The natural beauties of the place are well reproduced from an excellent series of photographs.

A DISASTROUS FIRE.

THE valuable research work periodically made public by the *Bulletin of the Manila Medical Society* renders the destruction of all manuscript, plates, and other property by an extensive fire, which occurred in April, a scientific calamity, inasmuch as it has rendered it necessary to suspend indefinitely the publication of the *Bulletin*. Our Philippine *confrères* have our deep sympathy in the disaster that has befallen their work.

◆

Reaction.—Either of the two following books will, we think, answer the purpose of our correspondent: "Syphilis from the Modern Standpoint," by McIntosh and Fildes (Arnold); and "Recent Methods in the Diagnosis and Treatment of Syphilis," by Browning and Mackenzie (Constable).

Mr. R. F. Cooper.—Our correspondent might find useful information in "Linn's Health Resorts of Europe," and in the section on spas and climatic health resorts in Churchill's Medical Directory; but the patient should not make a final choice without medical guidance.

Mr. J. F. Robinson.—Thyroid extract is not prescribed indiscriminately for arrested development in human beings, and it would be unscientific to administer it to animals except under skilled veterinary direction.

Rectum.—The symptoms point to the prostate gland. Our correspondent is advised to consult a surgical colleague.

Inquirer.—It is quite proper for the medical man to claim payment from the company for filling up the inquiry form.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22 Chenies-street, W.C.

MONDAY.—4 P.M., Dr. E. G. Little: Clinique (Skin). 5.15 P.M. Lecture:—Mr. J. D. Mortimer: Preparation for Anæsthesia.

TUESDAY.—4 P.M., Dr. P. Parkinson: Clinique (Medical). 5.15 P.M. Lecture:—Mr. L. G. Austin: Carcinoma of the Rectum.

WEDNESDAY.—4 P.M., Mr. G. Taylor: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. W. H. Willcox: The Treatment of Anæmia.

THURSDAY.—4 P.M., Mr. J. Cunning: Clinique (Surgical). 5.15 P.M. Lecture:—Mr. R. H. A. Whitelocke: Loose Bodies in the Knee.

FRIDAY.—4 P.M., Dr. G. W. Thompson: Clinique (Eye).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.——2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.——2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir Malcolm Morris: Skin.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. C. Rowntree: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.——2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. Dr. A. Davies: Pathological Demonstration. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.——2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. 3.15 P.M., Dr. R. Wells: Medicine.

FRIDAY.—Out-patient Demonstrations;—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.——2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. C. Rowntree: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.——10 A.M., Radiography.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., [illegible] tration of Cases in Wards. 12 noon, [illegible] Demonstration. 2 P.M., Medical and [illegible] Mr. Armour: Operations. 2.30 P.M., [illegible] ie Eye. 5 P.M., Lecture:—Dr. G. Stewart: Diseases of the Spinal Cord.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. *Baldwin*: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin. 5 P.M., Lecture:—Dr. G. Stewart: Diseases of the Spinal Cord.

Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin. 5 P.M., Lecture:—Dr. G. Stewart: Diseases of the Spinal Cord.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Mon

Tue

WEDNESDAY.—Clinics:—

2.30 P.M., Children'

(Dr. G. N. Meachen)

(Mr. W. Steuart); C

stration (Dr. W. H. Brooks).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4.30 P.M., Lecture:—Dr. Jex-Blake: Obstruction of a Main Bronchus.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lectures:—Dr. H. Howell: Neuritis.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

MONDAY.—5 P.M., General Meeting.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 2nd, 1913.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp.	Wet Bulb	Dry Bulb	Remarks.
June 26	30·22	N.W.	0·06	113	69	55	53	61	Fine
" 27	30 20	N.	...	119	68	56	53	69	Cloudy
" 28	30 31	W.	...	117	75	52	53	57	Overcast
" 29	30 30	N.W.	...	125	79	56	57	60	Fine
" 30	30 35	E.	...	119	71	56	56	61	Fine
July 1	30 39	N.E.	...	117	70	54	54	57	Overcast
" 2	30 31	N.E.	...	117	71	54	56	60	Cloudy

The following journals, magazines, &c., have been received:— Polyclinic, Transactions of the London Dermatological Society, British Journal of Inebriety, Medical Chronicle, Journal d'Urologie, Archives of Internal Medicine, Hospital Assistant (India), Journal of Nervous and Mental Disease, Surgery, Gynecology and Obstetrics, Journal of Laryngology, Rhinology, and Otology, Tropical Diseases Bulletin, Journal of the Royal Sanitary Institute, Magazine of the London (Royal Free Hospital) School of Medicine for Women, Quarterly Journal of Experimental Physiology, Bristol Medico Chirurgical Journal, St. Bartholomew's Hospital Journal, Transvaal Medical Journal, &c.

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J.—Professor R. Jardine, Glasgow; J. D. W.; J. G. S. F.

K.—Dr. L. F. Knuthsen, Lond.; Kent Education Committee, Lond., Accountant to the.

L.—London School of Medicine for Women, Secretary of; Mr. T. S. Logan, Stone; Leicester Royal Infirmary, Secretary of; [illegible] Co., Rome; [illegible] Dr. A. [illegible] I. Lacy, Warwick; *Locum, [illegible]*.

M.—Mr. J. McDonald, Falcarragh; [illegible] pital, [illegible]; Messrs. Z. P. Maruya and Co., Tokio; Nurse E. May, Camberley; Manchester Guardians, Clerk to the; Dr. Menbarto, Lond.; Messrs. Mundy, Gilbert, and Co., Birmingham; Manchester Corporation, Treasurer to the; Surgeon A. E. Malone, R.N., Dundee; Manchester Hospital for Consumption, Secretary of; Mr. J. R. Mitchell, Dartford; M. E. D.

N.—Newark Hospital, Secretary of; Northampton County Asylum, *Clerk to the.*

O.—Mr. W. Oulton, Liverpool; *Oldham Standard*, Manager of.

P.—Mr. H. W. Perkins, Lond.; Dr. S. G. Papadopoulos, Lond.; Dr. J. F. Porter, Lond.; Messrs. Pratt and Co., Manchester; Dr. J. H. Pringle, Glasgow.

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V.—Messrs. Van Houten, Lond.; Dr. J. C. Voigt, Southport.

W.—Dr. K. T. Williams, Danby; Messrs. J. Wright and Sons, Bristol; Dr. E. Walker, Westray; Messrs. Widenmann, Broicher, and Co., Lond.; Whitehaven Infirmary, Secretary of; Westminster Hospital Medical School, Lond., Secretary of; Messrs. F. Williams and Co., Lond.; Messrs. W. J. Wilcox and Co., Lond.; Messrs. A. Wander, Lond.; Dr. J. F. Ward, Manchester; Whitechapel Anti-Tuberculosis *Dispensary, Lond.*, Secretary of.

Y.—Messrs. A. Young, Lond.

A Clinical Lecture

ON THE

ARLY DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.

elivered at the Hospital for Consumption and Diseases of the Chest, Brompton, on March 4th, 1913,

Y J. MITCHELL BRUCE, LL.D., M.D. Lond.,
F.R.C.P. Lond.,
CONSULTING PHYSICIAN TO THE HOSPITAL.

Gentlemen,—When I last had the pleasure of lecturing ere, on the subject of the Elements of Prognosis in Pulionary Tuberculosis,[1] I had occasion to refer to the importnce from that point of view of the early diagnosis and 'catment of the disease. To-day I propose to discuss these wo aspects of the same great practical question—the dis- ɔvery *of tuberculosis within the chest at its very inception,* nd the *management of the patient immediately thereupon.* feel sure that you will agree with me that these subjects eserve at least an hour's consideration by us. I say by us," because I assume that, whatever may have been the xperience of you individually in the diagnosis and treatnent of tuberculosis, your object in taking this course of tudy at our hospital is wholly practical.

Early Diagnosis of Pulmonary Tuberculosis.

We begin with the early diagnosis of tuberculosis. Now can imagine some of you saying to yourselves that this is n easy matter. You refer to the familiar cases of very arly invasion of the apex of a lung, characterised by ymptoms and signs that cannot be mistaken, and thus onstituting "incipient phthisis," "the first stage of hthisis." What more, you ask, is there to be said about iagnosis in which there is no obvious difficulty? Let me ell you at once that I am not concerned with this class of ases to-day, but with instances in which tuberculosis exists vithin the chest of even earlier phase, in which neither ough nor expectoration may be present, fever temporary r indeterminate, and the ordinary physical signs entirely nappreciable. If such cases do occur, the diagnostic and herapeutic importance of them must appeal to you strongly. et me turn to certain well-established facts and discuss hem systematically and in detail with you.

Diagnostic Import of Pleurisy.

The first of these facts is that in a large percentage of ases pleurisy, dry or with effusion, is followed by pulnonary tuberculosis. The percentage is variously estimated y different authorities. Let us be content with the ndefinite term "large percentage," for this is no exaggeraion, and it suffices for our present purpose. We have learned this fact in two ways. First, prospectively, by watching the history of patients who have had pleurisy nder our own care; we follow it until only too often it nds in invasion of the lungs. Secondly, retrospectively, n taking the history of a tuberculous patient we quite ommonly learn that he had pleurisy some years before. Of the pleurisy and the interval, and the patient's condition between the pleural and the pulmonary invasions, there is much to be said that interests the student of tuberculosis. The pleurisy may be dry, and then it is usually limited and quite temporary. One lower lobe most commonly is its seat, possibly both lower lobes over quite small areas, distressing the patient but little, and we may venture to assume by no means always brought to the attention of a doctor. Most probably some of the adhesions at the bases which we never fail to find post mortem in phthisis are established at this very earliest period.

In contrast to these "latent" pleurisies is pleurisy with effusion, which is so definite in its characters, and in some instances is so serious—with urgent illness and severe pain, not by any means a "quiet" or "latent" pleurisy—that it is regarded as "a disease." It passes through the stages familiar to you all, may require paracentesis, but more often does not, and after a variable period leaves certain anatomical changes and disabilities in the chest of very different degrees in different instances. The patient resumes occupation and "the disease" is considered to be at an end. Whether dry pleurisy or pleurisy with effusion, this illness in the cases before us is followed by pulmonary tuberculosis. The interval of health varies widely—from a few months, or even less, to 20 years. Here are some of the intervals in cases of my own: 3 years, 5 years, 8 years, 12 years, 15 years, 15 years, and 21 years. The break-down in health, the new illness, takes various forms. Most commonly, perhaps, it appears as an insidious infiltration of one apex with the ordinary symptoms; or hæmoptysis is the first event to raise the alarm. A young woman has right pleurisy and recovers. At intervals during the next two years she is believed to catch cold again and again. Now she has hæmoptysis, and I discover crepitus in the left apex. Or there may be another attack of pleurisy; or all these characters come together. And in yet other instances tuberculosis may manifest itself in the glands, or in the peritoneum, or in bones.

The sequence is so definite, and in these days you are now so convinced of the infective nature of tuberculosis, that you may have difficulty in understanding the necessity I feel to insist on it. You may hardly believe that the truth of the sequence was only recently established. And, which is the point on which I desire to insist, you may be surprised to learn that it is still very readily overlooked—a serious matter. But, after all, this is not remarkable, and for two opposite reasons. Dry pleurisy as an illness is usually so slight that its significance is not regarded. A pain in the chest for a couple of days may not call up in the mind of the doctor the grave picture of pulmonary phthisis to come. The early diagnosis of tuberculosis is not made, and an opportunity is lost. On the other hand, pleurisy with effusion constitutes in its clinical features a "disease" so complete in every character that it is looked upon as something independent, standing or existing by itself. Tuberculosis does not occur to the mind of the doctor, the diagnosis of "pleurisy" being sufficient. Indeed, with the certain knowledge based on experience of the nature of the illness, an observer is often tempted to refer the pleurisy to another category. He is especially likely to do so when the effusion passes through its natural course—rises, halts at a moderate height, ebbs, and disappears without other than

by studying pleurisy with effusion in the course of active or chronic pulmonary tuberculosis. You know that we meet with cases of the kind. In every respect they follow the same natural course as the others. Sometimes the fluid may require removal, but more often it is of temporary appearance and is absorbed naturally. Indeed, I have known an effusion come and go whilst the intrapulmonary disease progressed actively to excavation. Therefore, the natural and apparently satisfactory disappearance of a pleuritic effusion by itself, that is, with no invasion of the lung, is not evidence of its innocence; rather the reverse. Another observation may mislead us unless it be properly interpreted—namely, absence of bacilli in the fluid removed, for such is our common experience. Indeed, this fact, when considered, ought to be regarded seriously instead of with satisfaction. The fluid effused into the pleura, like the œdema round an inflammatory focus in a limb, is an effect of reaction to a deeper process; and this must be pulmonary. I remember the time when the lymphatic relations of the pleura, lungs and bronchial glands were investigated by Klein; and how I concluded that pleuritic effusions or exudates passing into the delicate lymph structures of the lungs *might* well *choke them* and set up tuberculosis within them. But presently I discovered, by observing cases in the out-patient room here and elsewhere, that phthisis *following* pleuritic effusion appears as often on the unaffected as on the affected side—that is, is not a consequence of local drainage. Now we can say with assurance that the connexion is exactly the reverse, that the pleurisy is a manifestation of intrapulmonary tuberculosis—that is, originates in it.

Hæmoptysis sine Signis.

The second clinical fact that we have to consider relates to hæmoptysis. In the history of a patient with pulmonary tuberculosis well established we frequently find mention of hæmoptysis years before, apparently in the midst of health, brief, exciting temporary concern, and presently disregarded.

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[1] The Lancet, March 1st, 1913, p. 591.

And in the same way we quite often meet with cases of hæmoptysis in apparently healthy, possibly delicate, persons, unattended by physical signs of morbid character, occurring once or a few times only, with or without slight fever—an event, as it were, only, isolated, as if independent of pathological change in the lungs. I call this "*hæmoptysis sine signis*," finding it necessary to name it; so frequently do I meet with it that I have to group and distinguish the cases. Let me relate one or two instances to you. A lad of 18, with magnificent bodily muscular development (5 ft. 10 in. and 12 st. 2 lb.), had three abundant hæmorrhages, eight, four, and three weeks before I saw him. I found no morbid signs in his chest; he had neither cough nor sputum; neither had he lost weight. But his mother was tuberculous. A woman had hæmoptysis at 39 under another observer, and again at 46. In the interval she had three attacks of pleurisy and lost a child from tuberculous meningitis. A week after the second hæmoptysis I found nothing abnormal in the chest beyond weak and rather bronchial breathing and bronchophony at the right apex. No tubercle bacilli were found in the sputum. The absence of tubercle bacilli in such a case may appear to you to negative the diagnosis of tuberculosis. Let me discuss this point shortly. First, you know that it is not always possible to find tubercle bacilli in unquestionably tuberculous sputum, and that sometimes several examinations are necessary. Secondly, you also know that a considerable proportion of phthisical patients lose tubercle bacilli in the sputum after a course of treatment, although no one could maintain that the lungs are free from bacilli; recurrences of activity prove that the contrary is the case. Unquestionably the negative bacteriological result is, like the physical signs and some of the symptoms, misleading. And to this difficulty must be added the fact that in many cases of the kind no sputa are forthcoming when hæmoptysis has ceased. In these cases, then (and I have met with many more), you observe that, although hæmoptysis aroused suspicion of tuberculosis, suspicion could not be confirmed by other evidence, either at the moment or in the immediate course of the case. But after a variable interval, months or years, active disease makes its appearance. The conclusion is irresistible: the cases were tuberculous from the first. And we have formulated a clinical rule to regard all cases of hæmoptysis as tuberculous, excepting such as are obviously related to valvular disease, bronchiectasis, cancer, and a few rare diseases of other kinds. Some of you may say that failure to discover physical signs in the lungs in these cases of early hæmoptysis is due to want of skill or of care on the part of the observer. All of us are not equally expert in physical examination, but surely all are careful when dealing with hæmoptysis, which may be so profuse as to be actually alarming. For myself, I have often made a laborious, searching investigation of every part of the chest under the circumstances, all in vain, for morbid signs. It is then that we find ourselves troubled over the interpretation of the more difficult signs—palpable, by percussion, and auscultatory—with slight differences in the local movements, with impairment of resonance, with weak or with broken breath-sounds, with the perplexing observations we make on the respiratory murmur over the right apex as compared with the left—corresponding areas of the chest that normally yield very different signs. You may, then, take my word for it that you will meet with cases of hæmoptysis which, however experienced and attentive and alert you are, will puzzle you when put to physical tests.

And now what happens in cases of this kind? The histories that I have related have answered this question. The alarm raised by unexpected hæmorrhage is followed by intense relief when it so shortly ceases with no evidence either in symptoms or in signs that the lungs are diseased, health being perfectly restored immediately after profuse bleeding. A common conclusion is that the blood came from the throat. Work is pressing, and the man feels fit for it. In a week or less he is back at it, and thinks no more about the event. From this comfortable state of mind he often—not always—has a rude awakening. After an indefinite time pulmonary tuberculosis of ordinary form develops. Or hæmoptysis recurs, or pleurisy, or both of them come together, and later on the lungs are discovered to be invaded. The whole story, the natural history, of the morbid process is then revealed—unfortunately, it may be, too late.

A short time ago a man of 24 was attended by a friend of mine for hæmoptysis. No morbid physical signs were found, and the throat was suspected. Twelve months later he had more than one large bleeding; and now my friend was so impressed by the absence of appreciable signs of pulmonary tuberculosis that he took his patient to a laryngologist, who found fault neither with throat nor with chest. Nevertheless, the patient was very properly sent into a sanatorium for four months. He recovered his health, and kept well for 12 months more, whereupon hæmoptysis occurred for the third time; and now bacilli were discovered in the sputum. I saw him a few months later; and then—two and a half years from the beginning—found ordinary signs of infiltration of the right apex.

It is easy to see how patients and their friends may be deceived by the rapid recovery from the early hæmoptysis As for us, their medical attendants, if we are pessimistic we appreciate the seriousness of the event in its prognostic significance. But if we are optimists, as I trust most of u are, we have to restrain the wish that is father to the thought For once we have to look at our case with the stronges suspicion. And it is to impress this consideration on you that I dwell so long upon the clinical details of such cases a you will find them.

Early Cases Masked by Bronchial Catarrh.

I will next refer to cases occasionally met in which early tuberculosis is masked by bronchial catarrh. They are o different types. For instance, tuberculosis may follow upon the bronchial and pulmonary catarrh of measles. A delicate boy of 16, who had been feeling languid for months, wa believed to have bronchial catarrh only, complicating measles. A fortnight later there were signs of extensiv tuberculous pneumonia. Another lad of 16; who had ha bronchial catarrh occasionally for years, was sent home from school a few months ago with a somewhat severe attack Only loud rhonchi were heard at first over the whole chest but within a few weeks focal signs were discovered in th right apex. These in turn disappeared, leaving nothing bu weak respiratory murmur when I examined the chest. Th observations of three previous examiners and a famil history of tuberculosis alone enabled me to diagnose thi as an instance of a tuberculous process quite slow an insidious.

Still another group of these "bronchitic" cases a regarded as chronic bronchial catarrh with emphysema, or may be as "inhalation bronchitis." The tuberculosis associated with these diseases, and possibly may have bee engrafted upon them; but our present concern is that i existence is obscured by them in its early stage. In thes cases there is usually sputum to furnish evidence of tubercl bacilli, but not always; and, which is more importan practically, it may be so bronchitic in character that, along with the other features of the illness, it does not sugges bacteriological examination to the busy practitioner.

Evidence afforded by Family and Personal History.

It is under such circumstances as these that one especially appreciates the diagnostic importance of the patient's family history. Let us discuss this matter briefly here and its bearing on the diagnosis of all these types of early tuberculosis. When suspicion is aroused by the occurrence of pleurisy or of hæmoptysis, or when bronchial catarrh presents anomalous characters, the family history must be closely scrutinised. Recently I met with a case of bronchial catarrh with suspicious signs at one apex, in which it turned out that the father, mother and the only two sisters had all died of phthisis. And so with all the cases which we are considering. Whatever view you may hold on the subject of inheritance of tuberculosis *versus* infection, never fail to lay hold of the fact of occurrence of the disease in the same family. As for the patient's own past history, you will have appreciated the importance of it from what I have already submitted to you —the recurrences of pleurisy, the recurrences of hæmoptysis, the alternation of these at intervals. Similarly, you may discover glands in the neck of great age or scars of glands, or get a history of tuberculous knee or elbow, or of nothing more than a year's life on the Riviera, or of schooling on the coast of Kent—all significant when ascertained, but having to be dragged out of the patient by close inquiry. Occasionally one meets with a connecting link between what I may call the hæmoptysis type and the bronchitis type of these cases of early tuberculosis. A man of 33 was sent to me some time ago for free hæmoptysis, the fourth event of the kind within 12 months. His doctor in sending him wrote:—"I have examined his lungs and heart, and can find *nothing definite to account for the condition* *no cough* . . no night sweats and no loss of weight" I confirmed this description in the main, but found the respiratory murmur weak and soft, and the other ordinary signs of moderate emphysema An area of somewhat impaired resonance below the right clavicle perhaps represented a local tuberculous change

Languor.

The maximum of difficulty of diagnosis in early tuberculosis is reached when the only complaint of a delicate looking youth is languor Close inquiry elicits loss of weight as well as of strength, and the evening temperature proves to be slightly or moderately raised There may be cough which is explained away There is no sputum, and so no possibility to put the issue to bacteriological test Needless to say, tuberculosis is not the only disease that may be beneath these symptoms but it is always to be suspected, and every effort should be made either to identify or to eliminate it The family history and the patient's personal history are here again invaluable The case of a boy of 15 who was sent to me a few weeks ago gives his family doctor and myself, as well as his parents much concern Some six months ago he was kept in bed more than once at a public school for what appeared to be a severe "cold in the head" At Christmas he was still poorly, and he has been kept home this term His evening temperature rises occasionally to 99° F and he had lost half a pound in weight the week before I saw him There was neither cough nor expectoration, nor were there any adventitious sounds in the chest, but the physical signs over the right upper lobe were not perfectly satisfactory On such evidence alone who could say that the boy is tuberculous? But consider his family history On both sides it is bad His father's brother, his father's paternal aunt his father's maternal uncle all died of phthisis, *and so did his mother's mother and his mother's* maternal grandmother At least three streams, as it were, of tuberculous predisposition converged in this boy's constitution Practical men do not make light of facts like these, however doubtful the physical *signs*, and however unsettled the doctrine of inheritance of tuberculosis This type of case, where slight fever and delicacy, and loss of weight, and languor, and a suspicious family history are the only evidences of early tuberculosis, is quite often blended with the other types which we have examined The patient's history may include the occurrence of colds on the chest, of hæmoptysis, and of pleurisy In one case of my own the determination of tuberculosis as the cause of obscure fever with rather indeterminate physical signs in the chest, turned *on the discovery of associated congenital affection of the heart*

Most common of all difficulties and errors in this connexion is it to confound early febrile tuberculosis of the lungs with typhoid fever Some years ago I saw in consultation a young officer who was believed to have passed through an attack of typhoid fever during the previous three months —[illegible] pneumonia A [illegible] n by relapse of [illegible] ation which proceeded to effusion, also temporary, leaving signs of thickened pleura I was asked what was the condition—typhoid, or empyema, or pulmonary abscess, or tuberculosis? Here, as usual, the family and past personal history came to our help diagnostically A sister had scrofulous neck, and the patient had had pleurisy before Eleven days after my visit abundant tubercle bacilli were found in the sputum I have records of several cases of much the same character as this one, cases that had been diagnosed as typhoid In one of them so convinced were the observers that the disease was typhoid that four "Widals" had been taken and found negati[illegible] when [illegible] the ap[illegible] that I have seen abdominal distension and the ordinary evidences of tuberculous peritonitis, with or without pulmonary involvement, were interpreted to be due to typhoid or even to appendicitis.

EARLY TREATMENT.

And now, if I have carried you along with me in my insistence *on these various types of cases being instances of* tuberculosis, we may turn together to the second subject of my lecture, the early treatment of them This, you will acknowledge, at once follows early diagnosis indicates immediate and thorough treatment, and on this, as I said at the beginning, *success of the issue mainly depends*—that is, on taking advantage of the shortness of course and limitation of extent of the disease But, speaking as a practical man to practical men, I ask you Do we, whilst we grant, this conclusion, really apply it? When we have brought our cases of pleurisy with effusion, of hæmoptysis, and of other forms or temporary manifestations of tuberculosis safely through their acute or subacute stage, do we continue to treat the patients as one would treat them for a definite pulmonary lesion? I fear not Indeed, I know that in some instances we never do so at all, in many other instances we do so in a half hearted or a temporary fashion Let us see why

In the first place, these early manifestations of pulmonary tuberculosis are either too slight or, paradoxical as it may appear, too severe in character to impress us with the *necessity for antituberculous treatment* A passing illness a bronchial catarrh with moderate fever, in a delicate subject is soon forgotten even if it have been recognised as tuberculous The youth returns to school, the man to business, *for time is precious* On *the other hand the grave* alarm excited by sudden hæmoptysis in an apparently sound and healthy person is followed by an equal reaction—that is relief at its termination The immediate danger over, the remote danger is disregarded This patient also returns in a week or two to his occupation, whatever the hygienic conditions of it may be As for pleurisy, if it takes the form of a passing dry attack how few of us actually insist on prolonged treatment! If there has been effusion, especially if this has been large and has called for paracentesis and ended satisfactorily, we are influenced in another way to overlook the need of strict and prolonged treatment

As I said at the beginning of my lecture, one cannot help looking upon acute pleurisy as a disease *per se* We discover it readily by its physical signs We watch day after day the extremely interesting phenomena of increase of fluid, displacement of heart, collapse of lung, the course of the fever, and the other symptoms We find it necessary after so many days to tap the effusion It is a simple proceeding, but it is a definite act, the success of it impresses and satisfies us, the patient mends forthwith Even the dulness that remains after the tapping for many weeks disappears finally, and in some instances at least no trace of the extensive involvement of pleura and lung is to be found in casual examination Who can well blame us if the very *dramatic course of the illness (to use an expression* too strong for your ears, but not for the patient's) provoke us to forget that it is essentially tuberculous, and that in two five, ten, or 20 years the lung may be invaded afresh unless special treatment be employed forthwith?

Sanatorium or Non sanatorium Treatment

What is the practical issue of this lengthy discussion? What form is treatment of such cases to take? Opinion may be said to be sharply divided as to the severity—if I may call it severity—of the method to be employed Some of our leading authorities at this moment send the patient into a sanatorium without hesitation, and insist on prolonged residence there Another group of authorities (apart from those who consider treatment unnecessary, with whom we have nothing more to do at present) regard sanatorium treatment as unnecessarily strict in such cases, and may even be disposed to agree with the patient and his friends in considering it dangerous, although ready to confess that a railway carriage or a meeting hall is more likely to harbour tubercle *bacilli than a well conducted* sanatorium These authorities insist on what may be called modified sanatorium treatment at home More correctly, it is sanatorium treatment at home and at work The patient, if he may be called patient still, lives in fresh air night and day His bedroom, his sitting rooms, his domestic and social routine morning and evening, his office or shop or workshop, are all inquired into in detail, in a thoroughly practical manner, by his doctor and every fault or flaw is corrected as far as possible If in any important respect hygiene cannot be secured then larger measures are undertaken *The man's* occupation present or prospective, may have to be changed Here, as so much elsewhere in connexion with tuberculosis we discover the disadvantages of the poor With them it is a question of life *versus* livelihood I trust that State assistance which I understand some of you propose to administer will be extended to these early cases with no evidence fortunately, so far, of "open tuberculosis We have difficulty of another kind when the

And in the same way we quite often meet with cases of hæmoptysis in apparently healthy, possibly delicate, persons, unattended by physical signs of morbid character, occurring once or a few times only, with or without slight fever—an event, as it were, only, isolated, as if independent of pathological change in the lungs. I call this "*hæmoptysis sine signis*," finding it necessary to name it; so frequently do I meet with it that I have to group and distinguish the cases. Let me relate one or two instances to you. A lad of 18, with magnificent bodily muscular development (5 ft. 10 in. and 12 st. 2 lb.), had three abundant hæmorrhages, eight, four, and three weeks before I saw him. I found no morbid signs in his chest; he had neither cough nor sputum; neither had he lost weight. But his mother was tuberculous. A woman had hæmoptysis at 39 under another observer, and again at 46. In the interval she had three attacks of pleurisy and lost a child from tuberculous meningitis. A week after the second hæmoptysis I found nothing abnormal in the chest beyond weak and rather bronchial breathing and bronchophony at the right apex. No tubercle bacilli were found in the sputum. The absence of tubercle bacilli in such a case may appear to you to negative the diagnosis of tuberculosis. Let me discuss this point shortly. First, you know that it is not always possible to find tubercle bacilli in unquestionably tuberculous sputum, and that sometimes several examinations are necessary. Secondly, you also know that a considerable proportion of phthisical patients lose tubercle bacilli in the sputum after a course of treatment, although no one could maintain that the lungs are free from bacilli; recurrences of activity prove that the contrary is the case. Unquestionably the negative bacteriological result is, like the physical signs and some of the symptoms, misleading. And to this difficulty must be added the fact that in many cases of the kind no sputa are forthcoming when hæmoptysis has ceased. In these cases, then (and I have met with many more), you observe that, although hæmoptysis aroused suspicion of tuberculosis, suspicion could not be confirmed by other evidence, either at the moment or in the immediate course of the case. But after a variable interval, months or years, active disease makes its appearance. The conclusion is irresistible: the cases were tuberculous from the first. And we have formulated a clinical rule to regard all cases of hæmoptysis as tuberculous, excepting such as are obviously related to valvular disease, bronchiectasis, cancer, and a few rare diseases of other kinds. Some of you may say that failure to discover physical signs in the lungs in these cases of early hæmoptysis is due to want of skill or of care on the part of the observer. All of us are not equally expert in physical examination, but surely all are careful when dealing with hæmoptysis, which may be so profuse as to be actually alarming. For myself, I have often made a laborious, searching investigation of every part of the chest under the circumstances, all in vain, for morbid signs. It is then that we find ourselves troubled over the interpretation of the more difficult signs—palpable, by percussion, and auscultatory—with slight differences in the local movements, with impairment of resonance, with weak or with broken breath-sounds, with the perplexing observations we make on the respiratory murmur over the right apex as compared with the left—corresponding areas of the chest that normally yield very different signs. You may, then, take my word for it that you will meet with cases of hæmoptysis which, however experienced and attentive and alert you are, will puzzle you when put to physical tests.

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A short time ago a man of 24 was attended by a friend of mine for hæmoptysis. No morbid physical signs were found, and the throat was suspected. Twelve months later he had more than one large bleeding; and now my friend was so impressed by the absence of appreciable signs of pulmonary tuberculosis that he took his patient to a laryngologist, who found fault neither with throat nor with chest. Nevertheless, the patient was very properly sent into a sanatorium for four months. He recovered his health, and kept well for 12 months more, whereupon hæmoptysis occurred for the third time; and now bacilli were discovered in the sputum. I saw him a few months later; and then—two and a half years from the beginning—found ordinary signs of infiltration of the right apex.

It is easy to see how patients and their friends may be deceived by the rapid recovery from the early hæmoptysis. As for us, their medical attendants, if we are pessimistic we appreciate the seriousness of the event in its prognostic significance. But if we are optimists, as I trust most of us are, we have to restrain the wish that is father to the thought. For once we have to look at our case with the strongest suspicion. And it is to impress this consideration on you that I dwell so long upon the clinical details of such cases as you will find them.

Early Cases Masked by Bronchial Catarrh.

I will next refer to cases occasionally met in which early tuberculosis is masked by bronchial catarrh. They are of different types. For instance, tuberculosis may follow upon the bronchial and pulmonary catarrh of measles. A delicate boy of 16, who had been feeling languid for months, was believed to have bronchial catarrh only, complicating measles. A fortnight later there were signs of extensive tuberculous pneumonia. Another lad of 16, who had had bronchial catarrh occasionally for years, was sent home from school a few months ago with a somewhat severe attack. Only loud rhonchi were heard at first over the whole chest, but within a few weeks focal signs were discovered in the right apex. These in turn disappeared, leaving nothing but weak respiratory murmur when I examined the chest. The observations of three previous examiners and a family history of tuberculosis alone enabled me to diagnose this as an instance of a tuberculous process quite slow and insidious.

Still another group of these "bronchitic" cases ar regarded as chronic bronchial catarrh with emphysema, or i may be as "inhalation bronchitis." The tuberculosis i associated with these diseases, and possibly may have bee engrafted upon them; but our present concern is that it existence is obscured by them in its early stage. In thes cases there is usually sputum to furnish evidence of tubercle bacilli, but not always; and, which is more important practically, it may be so bronchitic in character that, along with the other features of the illness, it does not suggest bacteriological examination to the busy practitioner.

Evidence afforded by Family and Personal History.

It is under such circumstances as these that one especially appreciates the diagnostic importance of the patient's family history. Let us discuss this matter briefly here and its bearing on the diagnosis of all these types of early tuberculosis. When suspicion is aroused by the occurrence of pleurisy or of hæmoptysis, or when bronchial catarrh presents anomalous characters, the family history must be closely scrutinised. Recently I met with a case of bronchial catarrh with suspicious signs at one apex, in which it turned out that the father, mother and the only two sisters had all died of phthisis. And so with all the cases which we are considering. Whatever view you may hold on the subject of inheritance of tuberculosis *versus* infection, never fail to lay hold of the fact of occurrence of the disease in the same family. As for the patient's own past history, you will have appreciated the importance of it from what I have already submitted to you—the recurrences of pleurisy, the recurrences of hæmoptysis, the alternation of these at intervals. Similarly, you may discover glands in the neck of great age or scars of glands, or get a history of tuberculous knee or elbow, or of nothing more than a year's life on the Riviera, or of schooling on the coast of Kent—all significant when ascertained, but having to be dragged out of the patient by close inquiry. Occasionally one meets with a connecting link between what I may call the hæmoptysis type and the bronchitis type of these cases of early tuberculosis. A man of 33 was sent to me some time ago for free hæmoptysis, the fourth event of the kind within 12 months. His doctor in sending him wrote:—"I have examined his lungs and heart, and can find

These two are [illegible] of the series. In both there i [illegible] followed after an interval by [illegible] typhoid. The agglutination titres alter with the two infections exactly as one would expect t [illegible] are demonstrated, [illegible] was found in the [illegible] typhoid fever is quite in accordance with the work of Conradi,[10] who found that the typhoid bacillus is very frequently found in the fæces several days before the temperature begins to rise. Had these two cases not been investigated very fully the second illness would have been put down as a relapse of typhoid. Had either of them been examined by diff [illegible] *commencement of* [illegible] circulating in the [illegible] yet developed, pu [illegible] other writers already quoted would have been obtained. As it was, repeated examinations of the blood and excretions made the nature of the infections quite clear.

These cases also confirm the opinion of the officers of the Royal Army Medical Corps and Indian Medical Service in India that inoculations with a typhoid vaccine confer no immunity to paratyphoid fever, although, be it remembered, their experience applies mostly to the "A" type.

CASE 7.— [illegible] and feveris [illegible] hospital. I [illegible] above norm [illegible] agglutinate [illegible] in 1 in 200. [illegible] B. paratyp [illegible] typhosus [illegible]

These two cases, one must admit, seem at the first glance to confirm the view of those who hold that determination of the titre limits for B. typhosus and B. paratyphosus B is worthless for differentiating between the two infections. The agglutinations point to paratyphoid fever, but the typhoid *bacillus* is found in the urine during convalescence. I believe the absorption tests settle the question, and show that both ought to be interpreted as genuine cases of paratyphoid fever which have, during their stay in hospital, become "healthy" or "transitory" carriers of the typhoid bacillus—that is, the bacillus for a time inhabits, and multiplies in, the body without producing any clinically recognisable effects or necessarily provoking any distinct immunity response.

There are two possible explanations of these four complex infections. They may have been infected with the typhoid bacillus from the cases with which they were nursed in hospital. All were admitted and treated as typhoid cases along with others in large wards. Their real nature was not made clear for some time after admission. The less probable explanati [illegible] the epidemic was a carrier of [illegible] y of the patients fell a prey to [illegible] hers to paratyphoid, while a few underwent double infections either simultaneous or at an interval of time, one bacillus lying latent either altogether or for a period only. Evidence suggested very strongly a water-borne epidemic from a single case of typhoid. This patient's blood twice gave a positive Widal reaction and was examined once in late convalescence for paratyphoid agglutinins in a dilution of 1 in 50 with a negative result. It is unfortunate that a more complete examination was not possible. In any case, whatever the explanation, one cannot help feeling that there can, in the future, be no justification for nursing paratyphoid along with typhoid cases. The two diseases are perfectly distinct, the one on the average a mild disease, the other a serious one, and with the advance of knowledge public health authorities will be expected to keep pace and to take means to avoid exposing to undue risk those entrusted in their care. The difficulty is that the real nature of the infection can be recognised only by the help of bacteriological methods, and unless specially organised this requires time and may mean considerable expense. An ordinary Widal reaction has no value for differentiating; of this series 7 gave during the paratyphoid attack a positive Widal, but a persistently negative or slightly marked Widal reaction in a doubtful case should make one get the blood examined for paratyphoid.

CASE 9.—I, a male aged 7; gradual onset of illness; he was in bed ten days before admission on Oct. 21st. Thereafter there was irregular feverishness for a week or two. A few papules were present on the abdomen, and the spleen was tender and palpable. Examinations of [illegible] agglutinated [illegible]). Absorption [illegible] h. She was [illegible] reafter. The [illegible] e seen on the [illegible] titre of blood [illegible] 0, and for B. [illegible] case. [illegible] "influenza," [illegible] shness, and [illegible] lived in the [illegible] Case 5, and [illegible] The fæces [illegible] The blood [illegible] npletely in [illegible] earlier the [illegible]

Although in these three cases the causative micro-organism was not isolated, one can have no doubt, from the wide differences in the agglutination titres and the results of the absorption tests made in the first two, that they were undoubted instances of paratyphoid infection.

CASE 12.—L, a female aged 12; was a member of the family with which the patient (F) in Case 6 lived [illegible] as a contact case and gave a [illegible] (dilution 1 in 50 with B. typhos [illegible] went home from hospital on J [illegible] typhoid fever on Feb. 11th. The [illegible] and was admitte [illegible] degree.

This girl is the only case in the group where the evidence suggests a simultaneous double infection. Even here a more complete investigation might have shown that the typhoid infection succeeded a mild [illegible] a matter of fact there was [illegible] latter. The considerable i [illegible] her associate (F) and the or [illegible] to April 2nd—is interesting, and leaves room for speculation as to the mode of infection.

Epidemiology.—If this group of paratyphoid cases, occurring simultaneously with a sharp epidemic of typhoid, is quite independent of the latter, it is certainly a very curious coincidence. That the causative micro-organisms of the two diseases were disseminated from a common source, though a conceivable explanation, we have no evidence to support. Boycott,[3] from his results, inferred that about 3 per cent. of all cases notified in this country as typhoid fever are really infections with paratyphoid fever. Paratyphoid is not unknown in Aberdeen. In 1906–07 there were two small outbreaks involving eight persons, which although not fully investigated bacteriologically, were from the differential agglutinations ranked as paratyphoid fever. Again, in the summer of 1911 a group of six cases, definitely associated with a certain dairy, were judged, again from the agglutinations, to be paratyphoid, and on the excreta of the patients being examined B. paratyphosus B was isolated from the fæces of one of them.

M., a male aged 35, was admitted to hospital on April 29th, 1911 with a history of having been in bed with a mild illness for three weeks, during which time he suffered from diarrhœa. He had no [illegible] spots were [illegible] The [illegible] 1 in [illegible] phoid

During the typhoid epidemic the medical men were very much on the alert for possible cases of the disease, and it has been suggested that the 12 cases of paratyphoid investigated would, being mostly mild in character, either have escaped observation or diagnosis, or, having given positive Widal reactions, have been classed as typhoid infections. In other words, these represented merely the normal incidence can be quite well carried out; but the stone has to be crushed very small indeed to allow of its evacuation through the tiny catheter demanded by the calibre of the urethra: and several insertions of the catheter and lithotrite may be necessary before the operation is completed. The urethral mucous membrane is so soft that this repeated instrumentation may produce considerable damage to the canal, with the risk of subsequent constriction and even stricture. More than this, a suprapubic lithotomy is so satisfactory in children and may be done without scruple, as one does not expect to find advanced bilharziosis at this age, and in most cases the incision in the bladder can be completely closed without drainage. Bad bilharzial infection of the urethra with destruction of portions of the mucous membrane and fistulæ will sometimes prevent the possibility of lithotrity; but stricture of the urethra from any other cause need not necessarily be a bar to its adoption if preliminary dilatation or urethrotomy be practised.

One is rarely deterred by the size or hardness of the stone from doing lithotrity, for, provided that the bladder can be adequately distended with fluid, crushing may be effected. When a thick bladder is tightly contracted down on a large stone no amount of hydraulic pressure will distend the bladder; nor must it be attempted, as there is very considerable risk of rupturing such a bladder, especially where its walls may have been thinned by the presence and pressure of the stone. Suprapubic lithotomy must be performed in such cases, a second drain being placed in the perineum if there is much posterior pouching of the bladder. Encysted stones are best treated in this way also, though I have on more than one occasion managed to insinuate the blades of the lithotrite into the neck of the pouch and have gradually crushed the stone *in situ*. But it is not good practice. When the urine is filthy and full of débris, and the bladder obviously intensely septic, a perineal section should be done and frequent irrigation carried out in spite of any other risks; but in most cases this drainage is only the beginning of the end, as the case almost invariably comes to a fatal termination from septic kidneys, uræmic diarrhœa, and exhaustion, with extreme emaciation. I invariably use Milton's lithotrite, and cannot speak too highly of its simplicity and efficiency. One must always use a lithotrite as large as the urethra will carry and do as much as possible at one insertion. Then introduce a full-sized straight evacuating catheter with a large eye and evacuate the fragments slowly and carefully. Milton's evacuating syringe consists simply of a large rubber bulb, with two orifices placed at right angles to each other, one of which fits on to the end of the evacuating catheter, the other grips the neck of a glass bulb into which the fragments fall. There are no valves or taps of any kind, and as it is an instrument of considerable power care must be taken in its use.

During the course of a lithotrity it is wise to palpate the lower part of the abdomen just above the pubes from time to time for subcutaneous emphysema, an infallible sign of a rupture of the bladder. This accident may occur from a false passage through the base of the bladder or elsewhere by the improper passing of a sound catheter or lithotrite during the operation, and calls for an immediate suprapubic incision and exploration of the bladder, followed by appropriate treatment should any tearing really have occurred. To guard against this happening the straight evacuating catheter must be very carefully passed and guided by finger in the perineum, or even rectum in difficult cases, and the lithotrite must be allowed to fall into the bladder by its own weight, being guided along the bends of the urethra *en route*. If the beak cannot be freely rotated in all directions the instrument, whatever it is, is not properly introduced, and, moreover, the stone will not be felt.

In this series of cases there were 204 lithotrities with 9 deaths. In the first 77 cases there were 5 deaths, and two of these were certainly due to lack of experience in much diseased bladders, some tearing of the bladder wall being produced with gangrenous ulceration and septic cellulitis. The others were all from secondary septic bilharzial changes in ureters and kidneys. In the last 127 cases there were 3 deaths; one developed dysentery, probably of bilharzial origin, after the operation, but recovered from that only to die later after an operation for strangulated hernia—hardly a case of death after lithotrity; the second, a hemiplegic patient, developed septic thrombosis of the prostatic veins and pelvic peritonitis; and the third was an old man with an enlarged prostate and retention with overflow of urine and septic kidneys. The largest stone crushed in the series weighed 122 grammes, but there were 2 cases of larger stones in whom the lithotrity could not be completed and the bladder had to be emptied by perineal section. The youngest patient was aged 2. Included in the above also are 6 cases of perineal lithotrity, the lithotrite being introduced through a median incision in the posterior urethra and the stone crushed and subsequently washed out through a large evacuating catheter. One of these, a small boy with a large stone and much distended bladder, died the following day, apparently from shock. At the necropsy no other cause of death could be ascertained. Since October, 1908, spinal anæsthesia by stovaine has been used for all stone operations, except in small children, with very satisfactory results.

Perineal lithotomy.—This operation has been performed in 53 cases; 34 by median lithotomy with 1 death and 19 by the lateral operation with 3 deaths. These operations were done for cases in which it was considered necessary to provide drainage to the bladder and to allow of its subsequent irrigation. A large tube is inserted into the bladder and the perineal incision tightly sutured, the last stitch going through the tube and fixing it in place. Messrs. Down Bros. have made me a special forceps for introducing a tube into a deep cavity which I have found very useful in these cases. Essentially it consists of two hollowed blades joined by an obtuse-angled elbow to long scissors handles, the joint being at the second angle between the elbow and the handles. The tube is held in the grooved blades and thus introduced into the cavity and left in place as the blades are slightly opened and the instrument withdrawn. A smaller tube is attached by a glass junction and drainage maintained for as long as necessary, with free irrigation with permanganate, oxygen water, or chinosol. With the exception of one case of a very old man, who died from heart failure, the other fatalities were due to septic ureters and kidneys, one as long as five weeks after operation with a large pyonephrosis. In children median lithotomy was formerly practised, but has now been entirely replaced by the suprapubic operation. These perineal operations have sometimes been done as a demonstration to students who may after graduation be posted to certain districts where they cannot attempt lithotrity owing to want of practice or the lack of suitable instruments.

Suprapubic lithotomy.—Twenty-eight cases have been done by this method with six deaths. This operation is reserved for children, very large stones and encysted stones; and although many of the operations are comparatively easy, I have never been able to convince myself that suprapubic cystotomy is the simple operation the text-books would have one believe. The peritoneal reflection in the front of the bladder is often very low in our cases, frequently requiring to be carefully peeled off from the back of the symphysis, and even when the bladder is well distended—a feat not always easy of accomplishment in an Egyptian bladder—the dilated bladder forms a dome behind a veil of peritoneum stretched over the front of it. It is therefore very necessary to thoroughly expose the parts concerned in the operation and to be quite sure the peritoneal reflection is well out of the way before the incision is made into the bladder. Further, the firmly contracted thickened bladder lies deep in the pelvis, and unless the stone is a very large one, may not be easily reached and opened. If the stone is large, except in a very roomy bladder, no attempt should be made to deliver it whole, but it should be broken with lithotrite, lithoclast, or even chisel and hammer, and removed in pieces to prevent tearing and bruising of an already diseased and degenerated bladder wall. In children and in other cases where the bladder is fairly healthy an attempt should be made to completely close the bladder with sutures, with or without a catheter fixed in the urethra, a small drainage-tube being passed down to the sutured bladder and the rest of the suprapubic incision closed. In children I prefer to leave them without any catheter, but in adults a soft catheter is usually inserted and retained in position by means of a special catheter clip (made to my directions by the Holborn Surgical Instrument Company). This consists of two flattened rings of German silver capable of being altered in size by a sliding piece, which may be fixed at any point by a screw. The larger of these rings encircles the penis just behind the glans and is lightly clipped in position. The smaller ring grips the catheter just after it emerges from the meatus. The two rings are connected together by a thin bar, shaped to the outline of the glans, and when both screws are adjusted the catheter is firmly fixed and does not come out. In one case of urinary fistula the catheter was retained by this appliance without moving for nearly a month.

If the condition of the bladder will not allow the suturing of the wound entirely it must be reduced in size by sutures and a tube stitched into its upper part; but on no account must the bladder wall be stitched to the skin or the deeper structures or a fistula will inevitably result and persist. The dead space between the bladder and the muscles must be carefully packed to prevent leakage into the cellular space around the bladder. A smaller tube is fitted on to the tube in the bladder, and drainage takes place entirely by syphon action, without the intervention of any other special drainage apparatus whatever. Thorough irrigation may be carried out as necessary through a soft catheter passed per urethram.

Of the six deaths in this series one was from peritonitis from an accidental opening of the peritoneum and infection from a particularly filthy bladder; another died from peritonitis from sloughing of the bladder walls, the bladder being almost completely gangrenous; another of poisoning from opium which was unwisely given to check an attack of diarrhœa after the operation. Post mortem double pyonephrosis was present and advanced bilharzial changes generally. One small boy died from uræmia with large pale kidneys, and another adult from pyonephrosis. The last case was in an emaciated man with a stone weighing 240 grammes lying fixed in a large saccule in the anterior wall of the bladder. The stone was removed entire, and a week later the patient developed very severe dysenteric diarrhœa from which he slowly recovered, only to melt away and die from exhaustion with all the symptoms of a septic bilharzial urinary tract. Post mortem he was found to have a very bad bladder, dilated septic ureters, and pyonephrosis. One of my most recent cases was a boy, aged 12, with a stone of 150 grammes with a very irregular oxalate surface, but in a healthy bladder which I was able to stitch up without drainage. He passed his own urine the same evening and made a perfect recovery, and was out of bed in seven days. With him, as with all these cases, he was sat up as soon as possible after operation and encouraged to pass his urine naturally from the first.

Stone in the female bladder.—When the female bladder is attacked by bilharzia it is usually very severely affected and almost hopeless to relieve. Large stones frequently form in such bladders and they rarely come under observation till they have almost completely filled the bladder and project as a hard mass through the anterior vaginal wall. The mere fact of an operation being necessary in such a bladder augurs a bad prognosis. Nine operations were performed in these circumstances with four deaths. Four of these were done by the suprapubic route with two deaths, both from the usual bilharzial sepsis. Three stones were removed by vaginal lithotomy, and the fistulæ subsequently closed with good results. One of these stones had obviously formed on the sutures inserted at an operation for vesico-vaginal fistula. In two cases the urethra was dilated and the stones removed. One of these patients died, a woman pregnant seven months with terrible urinary sepsis and a stone of 65 grammes Micturition was so difficult and painful that something had to be done to relieve her. She aborted the next day and died a week later with advanced septic ureters and kidneys.

Stone in the urethra.—Thirteen cases were operated on, but many more were admitted for operation. On careful examination these turned out to be bilharzial urethra, the grating of a sound against a roughened patch or orifice of a fistula much resembling the touch of a stone impacted in a pouch off the urethra. Our principles of practice for urethral stone, which is always more or less impacted, is, under stovaine, to push it back with a sound or the beak of a lithotrite into the bladder and there crush it. This applies to stones behind the penile urethra. If the stone will not move an incision must be made into the canal in the perineum and the stone caught with urethral forceps and removed. An incision is never made into the penile urethra if it can possibly be avoided as fistula is almost sure to follow and prove very troublesome to close. Our only success in such penile fistulæ has been by putting a tube into the bladder as far back in the perineum as possible and draining off all the urine by this route, and then to do a plastic operation on the penile fistula over a straight piece of catheter, which is left in till the wound is firmly healed. The small fistula left in the perineum soon heals after the tube has been withdrawn. If the stone is at or near the meatus it is easily removed by enlarging the meatus and extracting with forceps, and the forceps are also used in the extraction of all stones in the anterior part of the penile urethra. Finally, the bladder must always be sounded after the removal of an impacted stone in the urethra. In one such case I removed 16 stones from the bladder.

Cairo.

THE BLACK (PIGMENTED) APPENDIX.

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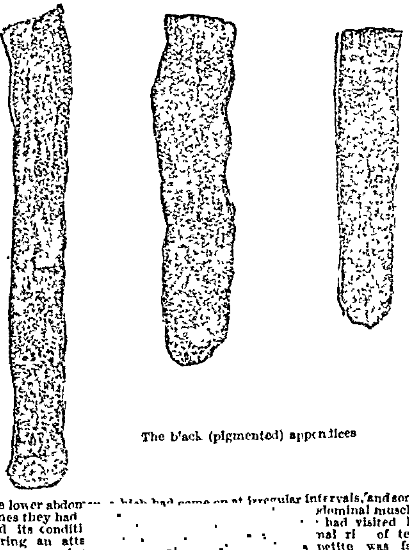
ALTHOUGH varying degrees of pigmentation have been described affecting the mucous membrane of the digestive tract, I have not met anywhere with a description of its presence to an extent equal to that found in the cases described here with one exception. Some years ago Dr. G. Newton Pitt[1] described and illustrated a specimen of pigmentation of the large intestine which he had found in the post-mortem room. The darker parts of the coloured illustration which he gives resemble very closely the appearance of the mucous membrane in one of the cases described below (No. 3), and probably extended into the appendix, although this is not shown. The pigmentation in that case was due to deposit of lead sulphide, and affected the whole of the large bowel from the ileo-cæcal valve down to the anus. The patient was a man aged 45, a worker in lead, who had suffered from lead colic. Some of the most eminent pathologists of the present day assure me that they have not met with anything like this extent of pigmentation in their investigations. The cases were as follows:—

CASE 1.—A lady, aged 32, for whom operation was done on March 31st, 1912, and whom I saw with Mr. C. H. Badcock. She had been an invalid for three years and a half with a condition to which the term "colitis" had been applied. She had suffered from attacks of pain in the lower abdom[illegible] which had come on at irregular intervals, and some-times they had [illegible] abdominal muscles. [illegible] had visited her and its conditi[illegible] nal ri[illegible] of tem-perature or incr[illegible] petite was fair She had suffered from constipation but not from diarrhœa Nothing abnormal could be found on examination. The appendix

FIG. 1. FIG. 2. FIG. 3.



The black (pigmented) appendices

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[1] Transactions of the Pathological Society, vol. xlii., 1891, p. 109.

which was 5 inches in length, was pelvic in position, described a hair pin bend about its middle, being fixed in this position by a shortened meso-appendix. There was no concretion, and little change was apparent in its walls beyond moderate submucous fibrosis, but the whole of the mucous membrane was of deep brown-bluish mottled appearance, which ceased abruptly at the line of section. (Fig. 1.)

CASE 2.—A woman, aged 30, was sent to me by Dr. T. S. Rippon on March 16th, 1912, with a complaint of pains in the right side. She had suffered for a period of three years. The pain was sometimes sharp and sometimes dull and aching. It came on every day in the same place, low down in the right side, and had been worse since Christmas. It was sometimes worse after extra walking, but occasionally came on when she was quiet in bed. She got tired, but was never sick. She had suffered from constipation for years. Pressure of the hand over the part would relieve it. The *periods* were *regular*, and *she had no* increase of pain at these times. Nothing abnormal could be found on examination. This patient was admitted to St. Thomas's Hospital, where the appendix was removed on April 3rd, 1912. It was about 3 inches in length, and contained some soft fæcal material. The mucous membrane was black, almost slimy in appearance, resembling the back of a black slug. There was a moderate amount of submucous fibrosis, but the evidences of previous inflammation were slight. (Fig. 2.) The other structures in the neighbourhood were normal.

CASE 3.—A woman, aged 43, seen with Dr. W. Ecklin on June 28th, and her appendix was removed in St. Thomas's Hospital on July 5th, 1912. I had performed the operation of nephropexy on her right kidney eight years before. The result of that operation had been very satisfactory, but she has an abnormally thin abdominal wall, so that it was still necessary to wear a bandage when going about. About June, 1911, Dr. Ecklin attended her for an attack of appendicitis of moderate severity, and a similar attack a fortnight before we met was followed by a very tender swelling in the right iliac fossa. She now went about [illegible] ight lower abdomen with her hand. There [illegible] pain in this part and much tenderness about [illegible] ligament under the right rectus Nothing abnormal could be felt on examination. The tongue was clean and bowels acting. She had taken medicine containing iron as a tonic under the direction of her medical attendant, but no patent medicine. The appendix was 2½ inches in length. The capsules of *two* apple pips were found in it. The mucous membrane was pigmented throughout, but there was little change in the walls. Her cæcum was large and loosely attached; it was also of a somewhat dark colour.

Some months later Dr. Ecklin wrote: "Before the operation the patient had been taking for some time the compound syrup of the hypophosphites, containing ¾ gr. ferri hypophos. in each dose, for neuralgia of the occipital and trigeminal nerves. She has been a different woman since the operation, and now that she has her winter cough, can give vent to it without putting her hand over the appendix region."

CASE 4 was that of a lady who was sent to me by Mr. H. W. Sexton. She was about 48 years of age, and had been in fair health until about two years before when she began to suffer from occasional pains in the lower abdomen, which came on without any apparent reason but did not prevent her getting about. In June and September, 1912, she had definite attacks of appendicitis, and in a third attack, three weeks before I saw her, she had been under the care of Mr. Sexton. On this occasion there had been a definite swelling in the iliac fossa, with a *temperature of 102·6° F. There was no history of the taking of any* medicine containing iron and she had not taken any patent medicine. Examination showed nothing abnormal. The appendix, which was removed on March 4th, measured 4 inches in length, was very adherent to the right side of the uterus and difficult to separate, the distal tapering portion being "shelled out." On section the distal half was almost obliterated, there being extensive fibrosis, with contraction of this part. The proximal third of the mucous lining was of a brownish-black colour, sharply defined by the line of section of appendix, gradually shading off beyond where there was cicatricial change following destruction of the mucous membrane.

The appendices were sent to Mr. Shattock, who had water-colour sketches made of three of them, examined sections microscopically, and sent them to the chemical department of the hospital for analysis. The illustrations accompanying this contribution reproduce the general appearance of the appendices, but do not show the brownish appearance of the lighter areas. Microscopical examination showed the deposit of pigment in the mucous membrane, both in and between the cells. Chemical analysis by Dr. Le Sueur showed that the pigmentation was produced by a deposit of iron, the exact combination not being defined owing to the small quantity of material available.

Mr. C. M. Page has kindly given me some references to papers by German investigators. The conclusions to which Simon[2] came were that in the series of specimens examined by himself, pigmentation was found in the mucous membrane, after inflammation, in 5 out of 43 removed by operation; in 1 out of 34 removed at necropsies. In 8 out of the 77 there was some pigmentation where the appendix was normal. It was found more frequently in lymphatics, perinodular capsule, and in the muscle after death than when the appendix had been removed by operation. In many the deposit of pigment was only found microscopically. He concludes (1) that the pigment had an iron reaction in all instances, except when found in the smooth muscle; (2) that the pigment was hæmatogenous in origin; (3) although some pigmentation occurs in normal cases, inflammatory or congestive processes are important causative factors; and (4) the pigmentation is not caused by an absorption of blood or bile from the intestinal canal, although this has been shown to occur in the newly-born pup. Schmidt[3] found pigment giving an iron reaction both in the tonsils and in the appendix in connexion with broken-down red cells, and concluded that "tonsils, mucous membrane, and submucous tissues of the appendix exerted normally, and in an increased degree pathologically, a hæmolytic function, in a similar way to the spleen and the marrow." Aschoff[4] is of the opinion that in tonsil and appendix trauma as well, hæmolysis is the cause of the pigmentation. Winkler[5] considers that repeated inflammation sometimes causes pigmentation although it may also be seen where there is no evidence of any other pathological condition. He also says that pigmentation (visible to the naked eye) in varying degrees is found in the mucous membrane of the ileum and cæcum. He has seen marked pigmentation in tuberculosis of the intestine. All these writers agree that the pigmentation is due to a deposit containing iron, and this was found in the appendices examined by Dr. Le Sueur, who excluded the presence of mercury, bismuth, and lead.

The pigmentation was deep and most extensive in all, evidently going for an indefinite distance into the bowel, as is shown by the line of section in each, and by the dark colour of the adjacent cæcum, which was rather thin-walled in Case 3. Its deposit to such an extent suggests that it was due to absorption from the contents of the large intestine, in a manner similar to that of the deposit of lead in the lead worker before mentioned. There is, no doubt, a good deal of iron in the contents of the large bowel, but here there must have been more than usual and that for a long period. Had such a condition been likely to occur from the use of iron given in the form of medicine, our post-mortem records must have described it long ago. These cases are the only ones in which I have found such a curious condition (for it has no clinical significance) in a long series of operation cases. I can but think that it may be due to excess of iron in the flour which is put out from the roller-mills, the influence of which on appendicular constipation, the formation of some concretions, and when in a coarse form the direct production of appendicitis is difficult to estimate.

Harley-street, W.

PROCIDENTIA OF THE UTERUS AND RECTUM AT THE AGE OF 27 YEARS,

WITH REMARKS ON THE TREATMENT.

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THE patient was admitted to hospital on Dec. 8th, 1908. She stated that she had been troubled with the prolapse of the bowel since childhood, and that at times it caused much pain and bled freely. Before her marriage there had been some trouble with the falling of the womb, for which she had worn a ring. There had been one confinement 13 months previously; the labour was difficult, and since then her symptoms had been aggravated, the womb coming down whenever she walked.

On admission it was found that on standing up and straining slightly several inches of the rectum could be extruded as a large sausage-shaped mass, and at the same time the vaginal walls and the cervix descended outside the vulva. On reducing the rectum the anus was very patulous, and there was little power of contraction of the sphincter. The cervix was fissured on the right side. The perineum was in good condition.

On Dec. 19th the abdomen was opened in the middle line and the loose pelvic colon was drawn up until it descended vertically to the anus. By firmly retracting the abdominal wall to the left it was possible to secure the rectum in the iliac fossa after the method advocated by Ball. The peritoneum was incised, a series of sutures were inserted between the muscle and the longitudinal band of the bowel, and the edges of the peritoneum were stitched to the rectum.

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[2] Simon: Uber Pigmentierung in Darm mit besonderer Berücksichtigung des Wurmfortsatzes. Frankfurter Zeitschrift fur Pathologie, Band iii., 1909.

[3] Verhandlungen der Deutschen Pathologischen Gesellschaft, Dresden, 1907.

[4] Ibid.

[5] Die Erkrankungen des Blinddarmhanges, 1910.

On drawing the uterus up from the pelvis it reached almost to the umbilicus Fixation was performed by a series of buried silkworm gut sutures passed through the anterior wall of the uterus and the aponeurosis

After the operation the patient was completely relieved of her trouble Towards the end of 1911 she became pregnant for the second time, and was delivered in September, 1912 The labour was normal, and came on about three weeks before the expected date When I saw her in March, 1913, she was complaining of some backache, and stated that on coughing she felt the womb come down, but during the last three months this had ceased to occur, and on examination the fundus of the uterus could be felt about an inch below the umbilicus *The cervix was in good position fully* 2½ inches from the vulva There was, however, a slight cystocele

The association of procidentia recti with procidentia uteri of a most pronounced degree is, so far as my experience goes, a most unusual occurrence, so much so that I think it must be regarded as a coincidence for if the two conditions were due to the same underlying cause we should often find them associated, which is not the case

A common cause of prolapse in the infant in the absence of rectal polypus is diarrhœa associated with malnutrition and wasting with a general loss of tone in the tissues, the trouble is usually easily cured by improving the health and preventing the prolapse from taking place, but from time to time one meets with an obstinate case in which, in spite of treatment, the bowel continues to protrude, and if not remedied may persist into adult life That this is so is evidenced by the history of these patients I have met with four of these severe cases of procidentia in women varying in age from 27 to 50 years in all of whom the trouble had been present from childhood These inveterate cases in children are quite easily cured by operative measures Linear cauterisation is of doubtful utility, and I have seen recurrence of the trouble follow, but I have never known failure after excising a good strip of the mucous membrane The method I employ is to draw down the prolapse to the full extent, place a tenaculum forceps on the apex of the inverted rectum and another at the junction of the mucous membrane and the skin, both on the anterior aspect of the bowel, and to excise a large lenticular area of the mucous membrane and close the wound with a continuous catgut suture, the bowel is then returned, and heals in a few days, care being taken not to allow it to again prolapse during the process of healing

In the cases to which I have referred in the adult the whole rectum was inverted to the extent of from 5 to 8 inches Three of these cases were treated by excision of the whole mass in the following manner The bowel was incised all round above the level of the sphincters and the peritoneum opened, the vessels in the mesorectum were secured, and all the slack bowel drawn down and removed, the peritoneum being sutured to the wall of the rectum and the cut edge of the latter to the anal edge of the mucous membrane The results of this procedure have been most satisfactory, and the patients have regained the control of the overstretched sphincter The fourth case is the one now recorded in which rectopexy was performed With regard to the choice of operation, I must admit a preference for complete excision, as I think it is a more certain cure, and the risk does not appear to be greater, although it is a more formidable procedure

With regard to the much debated question of the best method of curing prolapse of the uterus, ventral fixation is undoubtedly of great value in dealing with these severe cases The operation is considered not to be sufficient by itself to produce a permanent cure, but that it is desirable to supplement it by colpoperineorrhaphy That the latter gives additional security by supporting the parts from below cannot be denied, and I usually employ both procedures In the case recorded above, fixation appears to have effected a cure, for a short period after her confinement there was a tendency to prolapse, but during the last few months this tendency has completely disappeared in spite of having an unusually large and heavy infant to carry about This may be explained by the fact that practically the whole of the anterior surface of the uterus was fixed to the abdominal wall In performing the operation I was careful to limit the sutures to the anterior uterine wall, so that should a subsequent pregnancy occur free expansion of the fundus and posterior wall could take place

Wimpole-street W.

SURGICAL TUBERCULOSIS IN CHILDREN, WITH SUGGESTIONS AS TO A METHOD OF TREATMENT[1]

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A Review of the Methods and Results of the Treatment of Surgical Tuberculosis

Definition —By "surgical tuberculosis" is meant tuberculous disease of bones, joints, glands, and skin Other rare manifestations of the disease are met with in children, affecting the kidneys and bladder

Age —It appears to me that in this connexion we should regard the age of childhood as extending to the fifteenth year, because that is the time when the active growth of bone ceases and its extreme liability to tuberculous infection diminishes Certainly, up to the age of 15 years and sometimes for a year longer bone retains the characteristics of early life and its reaction to tuberculous infection

Relative frequency of surgical tuberculosis —In 1902 I obtained returns from four Children s Hospitals in London, and I found that during the year 1901, 2040 children were admitted to these hospitals for all causes, and of them no less than 218, or over 10 per cent, were affected with tuberculosis of the bones, joints, glands, and skin Of them 115 were females and 103 males The average age of the patient was 5 years and 8 months Ninety children had affections of the joints, 64 had the bones affected, or 154 of the 218, 45 had tuberculous glands, 10 had tuberculosis of the skin, and 9 had other forms of surgical tuberculosis The minimum stay in hospital was 5, and the maximum 76, days, or an average of nearly six weeks

Results of treatment, which was largely operative in urban hospitals —On these 218 patients 415 operations were done—that is, nearly two operations on each patient In one case it is recorded that a child was operated on 18 times, in another 12 in another 11, and in one instance I met with in a surgical clinic in Germany in the year 1888 a child had been operated on 35 times, and was apparently as far off cure as ever

As a result of all this suffering of the children and expenditure of time and labour by the surgeons only 68 of the 218, or 31 2 per cent, were said to be cured, 128, or 58 6 per cent, were relieved—and relief is no cure in tuberculosis since half cures are worse than none at all In 13 cases the result was doubtful or the condition of the patient unchanged, and nine patients are known to have died in hospital

Results so disappointing as these led me to reconsider the whole question, and in 1903[2] I expressed the views that—1 Urban hospitals are not suitable places for the treatment of tuberculous children 2 Operation as a routine treatment has failed 3 Other methods of treatment must be found 4 Treatment conducted in urban hospitals is wasteful and dangerous wasteful because the financial resources of the hospital are not used to the best advantage, considering the results attained, and dangerous because such children are often sent from the hospital with tuberculous discharges, which are a cause of dissemination of the disease amongst those around them

Contrast of the urban and extra-urban hospital treatment —[illegible] I have been fortunate enough to [illegible] rgeon to the Hip Hospital [illegible] to compare the results of [illegible] with those at the urban children s hospitals Taking the cases in 1901 I obtained the following statistics I must, however, premise that many of the cases which were under treatment at Sevenoaks during that year, as in previous and subsequent years, had been sent from London after operative treatment had been tried and failed, and thus the country hospital has not had a fair choice of cases—i.e., of what may be termed "early" cases.

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[1] The statements in this paper much of which served as a Memo- [illegible]

[2] Loc. cit

The Sevenoaks statistics were as follows: 42 cases were under treatment in one year, the average age of the children was a little over 6 years, 30 had joint disease, in 10 the bones of the spine were affected, and 2 suffered from enlarged glands. The average duration of stay in hospital was 10½ months and the total number of operations was three. The results of treatment showed 14 cures, 24 patients were relieved, and many cases were progressing satisfactorily and promised thoroughly well. Three were discharged as incurable and one died from tuberculous disease of the kidney.

Contrasting these statistics with those obtained from the London hospitals, we find that the duration of stay in the country hospital was 45 weeks, as compared with 26 weeks in London; the proportion of cures was 33 per cent., as compared with 31 per cent. in London; the deaths are under 2 per cent., as compared with 4 per cent. in London; the percentage of operations in London as compared with those in the country were as 19 to 0·07, or nearly 30 times more. Incidentally, I may mention that so successful has the conservative and climatic treatment proved at Sevenoaks that three patients, who had been under treatment there for hip-joint disease, subsequently enlisted and served with the infantry throughout the South African war.

Lest an erroneous impression should be given by the statements which I have made, I should like to say that I am not prepared to aver that operation is entirely avoidable, even if the climatic treatment of tuberculosis is carried out from the first in the country or at the seaside. But I do say *explicitly* that, if climatic and conservative methods are adopted from the first, the necessity for operation is enormously diminished and the final results are better.

Causes of the change in surgical opinion in the treatment of surgical tuberculosis.—During the last decade the conception of this disease has been undergoing a great change. Whereas formerly the affection was regarded simply as a local disease, to be treated as such, experts now look upon it as a loss of resistance to the tubercle bacilli, manifesting itself as an inflammation and degeneration of one or more bones and joints; or, to put the matter in another way, the idea from, say, 1880 to 1902 of the nature of the affection was that the joint was the head and forefront of the affection, and the general condition was a secondary and superficial matter, being merely a sequela of the joint or bone disease. The present idea, which is supported by the great majority of experts, is that the general condition of health and the power to resist are all-important and the local affection will recover if the health is improved and the resistance is increased. Whilst these remarks are true in the case of adults, they are much more apposite in dealing with the children. If we contrast the reaction of adults and children to tuberculous affections, we observe in the latter that the local disease does not become circumscribed so readily as in adults by the natural processes. C. F. Painter,[3] of Boston, says: "This conclusion is apparently antagonistic to the fact that tuberculosis tends to become more spontaneously arrested in children than in adults. Nevertheless in children, when an operation is performed, the wider vascular and cellular spaces are opened with the knife and chisel, and dissemination of infection into new and unguarded localities takes place." In fact, whilst in adults the healing of tuberculosis is accompanied by the formation of a barrier of dense fibrous tissue, the young and rapidly growing tissues of children do not take on this limiting action to anything like the same extent. It follows, then, that the *fundamental method of treatment* in a child must be one which increases the power of general resistance to the disease.

Factors involved in the improved treatment of tuberculosis of childhood.—The factors in the improved treatment of tuberculous disease in children are four in number: (1) the wide recognition of the beneficial effects of climatic treatment; (2) the employment of Roentgen rays in diagnosis and occasionally in treatment; (3) the improved use of tuberculins, and the estimation of methods designed to check and control their action; and (4) the better education of surgeons in the use of supporting apparatus, and the greater ingenuity which is constantly being displayed in the invention of new apparatus or in modifying old ones to meet various conditions of deformity.

Climatic treatment: what it is.—By the term "climatic treatment" is meant the treatment of "surgical tuberculosis" in children either at the seaside or in the country. Climatic treatment is open-air treatment in fresh air with as much sunshine as possible; and at present I regard it as the best means we have of combating the disease.

I have already referred to this matter and contrasted the results of urban and extra-urban treatment in my statistics gathered in 1902; and now I pass on to more recent statistics gathered from foreign sources.

J. W. Sever[4] has given us comparative statistics on these points. 101 cases of disease of the ankle and tarsus were operated upon in city hospitals, involving 45 excisions of the astralagus, 14 removals of the lower end of the fibula, and 11 removals of the lower end of the tibia. Good movement of the part followed in 29, slight in 22, none in 47. In only 7 there was no subsequent deformity. In 65 thickening remained about the malleoli; in 29 some definite distortion of the foot followed. The average duration of the disease from its onset, in the operative cases, until treatment was discontinued was 19·8 months—and of treatment itself 10·1 months.

For comparison, results in 88 non-operative cases treated by the open-air method are tabulated. Motion was good in 32, slight in 23, and none in 33. Deformity was entirely absent in 4, thickening was present in 63, and distortion was present in 21. The average duration of disease until the cessation of treatment was 16·1 months in 99 cases; the average duration of treatment itself was 6·8 months, giving an average in favour of the non-operative series of 3·3 months from the beginning of the treatment until it was no longer necessary. The figures show that "there was a distinct gain in time, also in the function and lack of deformity of the foot in the non-operative series."

In the United States of America so widely has the principle of the climatic and conservative methods been recognised that a country hospital was established by the city of New York in 1900, in the State of Pennsylvania, by the generosity of the late Mr. Widener in 1904, and I note that a further sum of £400,000, or $2,000,000, has been given by one of the same family to support an extension of the work. The States of Massachusetts, Nebraska, Ohio, and Minnesota are proceeding on the same lines. In the statistics of tl New York State Country Hospital I find that from its esta lishment to 1910 there have been 197 patients treated; th remained in the hospital on an average for four years, ar the results are that 55, or 36·42 per cent., of the childr were thoroughly cured, 85, or 56·9 per cent., were improve 7 were found to be unsuitable for further treatment, 1 wa removed by the parents, 3 died from acute illness other tha tuberculosis, and the remainder are still in hospital. Thes results are typical of other country hospitals.

In England private effort has done a certain amount, an we have amongst others the Treloar Hospital at Alton, th Royal Sea-Bathing Hospital at Margate, the Liverpoo Country Hospital at Heswall, and many convalescent homes These, however, are totally insufficient to grapple with thi pressing problem; and those who are keenly intereste earnestly hope that means will be found of effectually dealing with the matter. If they are, I am convinced that we shal obtain results in this country which are second to none.

When I had the honour of opening the discussion in December, 1911, at the Children's Section of the Royal Society of Medicine on the Indications for Surgical Interference in the Treatment of Tuberculous Joint Disease in Children, with Remarks as to the After-results, it was found in the discussion that the opinions of the experts present were unanimous in concluding that climatic and conservative treatment is better than aggressive and operative measures

The diagnostic use and therapeutic value of X rays.—The X rays are *invaluable*, because by employing them, from the first, we are able to see the beginnings of the disease, we can watch its progress, note the effects of treatment, and check and regulate our methods; also, without doubt, in some resistant forms of tubercle, such as synovitis and the early stage of enlarged glands the use of X rays has been instrumental in checking the disease. I venture to suggest that a certain portion of any sum allotted for research should be devoted to elucidating and settling on a scientific basis the use of X rays in the diagnosis of tuberculosis, and their value in treatment.

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[3] American Journal of Orthopedic Surgery, January, 1905, p. 26.

[4] Journal of the American Medical Association, Dec. 16th, 1910, pp. 2128–33.

The use of tuberculins.—Much controversy is going on, not only as to which kinds of tuberculin are efficacious and *which are not, but also as to the dosage and the after-results.* A very wide field of research work is thus open.

The foregoing statement is an attempt to present to the reader the state of affairs as it is to-day and the general trend of expert opinion. It remains to formulate a plan by which the benefits of the new scheme can be used to the greatest advantage in the treatment of tuberculous children; also how existing means can be adapted for the purpose and on what lines new machinery should be provided.

The Leading Principles of a Scheme for Dealing with Surgical Tuberculosis in Children.

It may be asked, What are the leading principles which should guide us? They are: 1. The *registration* of every case of tuberculosis in children throughout the country. The means by which this can be done will be discussed in detail. 2. The treatment of such children by *climatic* methods in suitable *places*. 3. Such places must be *conducted on hospital lines* and not on those of convalescent homes or houses of refuge. The hospital should be under the supervision of medical men who have received special training in this subject. 4. The *admission* to such hospitals must be rendered as easy as possible and without any unnecessary routine; the tender age of a child should be no bar to its admission. 5. *The question of the duration of stay* in hospital is to be decided solely on the curability of the case. 6. The *following up* of all cases, after leaving the hospital, is to be arranged for. 7. The *education* of the child is to be provided for during its stay in hospital. 8. Tuberculous *cripples* to be taught suitable trades. 9. Special provision to be made for *incurable cases*, and precautions taken to prevent their becoming a source of infection to healthy individuals. *Research* must occupy a prominent place, and a scheme is suggested (see below). *Administration* will also be discussed.

Suggestions for Carrying out a Scheme for Dealing with Surgical Tuberculosis in Children.

1. *Registration.*—In order to obtain as complete a register as possible, the coöperation of: (*a*) all those official bodies which now deal with tuberculosis in some form should be secured—such bodies are county councils, sanitary authorities, joint hospital boards, local education authorities, Poor-law authorities, metropolitan asylums boards, the medical officers of health, and Insurance Committees; (*b*) the coöperation of voluntary and philanthropic bodies—some such are the Invalid Children's Aid Association, the Ragged School Union, the Pleasant Sunday Afternoon Association, the voluntary hospitals, and the District Nursing Association.

By their means a complete register will gradually be secured, and by its aid the whole course of the child will be followed from the time it first comes under observation until it is cured or otherwise. The register will be effectual in simplifying the general problem of treatment; it will not [illegible] but will also be a means [illegible] makes under systematic [illegible] in following up the child after it has left the hospital; and, in fact, it will be the basis of what may be called a "clearing house" between various districts. A carefully compiled register is, in essence, the basis of the whole scheme, which I have the honour to suggest.

2. *The climatic treatment of tuberculous children in suitable places.*—We have already said the essence of successful treatment must be that treatment is carried out in fresh pure air, and the more nearly it is outdoor in character the more likely it is to succeed.

Following the experience gained in England and America, it seems that the ideals to be aimed at are "colonies" of children housed in: (*a*) Inexpensive buildings, preferably of wood with brick foundations, each ward holding not less than 12 and not more than 20 children. Each building should be fully windowed, facing south and west, where the children may be during the day, and sleep at night if the weather is inclement. (*b*) The plan adopted in America of using what are called "shacks"—that is, light structures of wood and glass, just sufficient to prevent undue exposure to cold and wet. (*c*) Tents for general use in the summer months. In fact, a wider use of tents is indicated, as they can be made available for the purpose of segregation and of guarding against the spread of infectious disease. Some patients pass their whole time in tents, and in the winter it is found there is no difficulty in warming a tent.

Each colony will be a separate unit in each administrative area. It may, however, be deemed wise where certain facilities already exist to utilise them. By "certain facilities" I mean the sunny ground-floor rooms of cottage hospitals, with verandahs, also the existing voluntary institutions.

In the early stages of carrying out the scheme I venture to express the opinion that it will be better not to spend money on permanent and expensive brick or stone buildings, for it is quite certain that modification in methods of treatment will be introduced as the result of experience and research. As to the question whether a portion of an adult sanatorium should be utilised for treating tuberculous children, I can see no grave objection to it provided that the *children's pavilions* are kept *apart, that no great expense is* incurred in their erection, that the climatic conditions are sound, that they are under skilled surgical supervision, and that the treatment of the children is not made subsidiary to that of the adults.

3. *Such places must be conducted on hospital lines and not on those of convalescent homes and houses of refuge.*—These places and the method of treatment should be under the immediate supervision of a surgeon, who should have been specially trained to the work and have particular knowledge of the subject in all its branches. Such officers are also to be fully acquainted with the modern pathological technique and the methods of clinical research. They should be capable of carrying out details of scientific investigation at the wish and under the guidance of the chief of the central clinical and bacteriological laboratory, which for purpose of convenience should be in the immediate neighbourhood of the central institute (see below). The surgeons must also be skilled radiographers.

It follows from the nature of their duties that the whole of their time should be devoted to them; and the salary to secure the whole time of reliable officers should be about £500 or £600 per annum. There is, however, little or no doubt that we do not possess in this country more than a few men, and certainly a totally inadequate number of them, who are capable of performing these duties. It will therefore be *necessary to train such a body of men under surgical* experts specially appointed for the purpose. These experts may be either members of the Advisory Committee (see below) or be appointed for training purposes by the advice of the expert members of that body. It is also suggested that the surgical officers of the local institutions should have opportunities from time to time of studying methods carried out abroad; and for this purpose leave with full pay should be granted.

In considering this scheme it is presumed *that the treatment* of surgical tuberculosis in children will be dealt with either by the Insurance Committees of each county or by the county councils.

4. *Admission to the hospitals.*—Admission to hospitals should be hedged in with as few restrictions as possible. The mere fact of the existence of the disease before the age of 15 years shall be the ground for admission; further, patients shall not be kept waiting for a vacancy. When a case is sent the surgical officer shall decide whether it is curable or not and shall deal with it accordingly. If incurable, special provision shall be made for the case (see below). If curable, the consent of the parents to the stay of the child in hospital for at least one year shall be obtained after they have had the advantages of treatment pointed out to them; and at the beginning of a second year the permission of the parents shall be renewed, and so on as long as necessary. Tender age should be no bar to admission, because, the younger the child is, the more responsive it is to the influences of climatic surroundings, plentiful food, fresh air, and local treatment of the disease.

5 *Duration of stay.*—The duration of stay in hospital of the patient shall be decided only by the progress he makes

and the question of his curability, with the exception of that of attaining the age of 15 years. If the patient, at the age of 15 years, is in the way of cure, special arrangements may be made for his further stay so as to complete it.

6. *Following up cases.*—An essential feature in the ultimate success of climatic and conservative treatment is the *following up* of patients by officers appointed for the purpose after the patients leave the hospital. The object of following up is to ascertain if the patients' surroundings are suitable and if there are signs of relapse; herein is one of the many values of thorough and complete registration of all cases.

7. *Education of children whilst under observation.*—The education of the children shall continue to be under the direction of the Board of Education or of the Education Committee of County Councils, and will probably follow the plan now in work at the Royal National Orthopædic Hospital in London.

8. *Teaching trades to tuberculous cripples.*—As the ultimate objects of the scheme are to convert diseased into healthy individuals, and dependent or partially dependent into independent self-sustaining men and women, who will become useful members of society, it is necessary that each should, if possible, be taught a trade. Special teachers and methods are required for those who, being crippled, cannot be restored to perfect physical conditions, and instruction in particular trades must be provided if they are to be enabled to earn a satisfactory livelihood. The State of Nebraska has recognised these facts, and, since 1905, 450 children have been treated for their diseases, educated, and trained. Among the trades may be mentioned carpentering, leatherwork, trunk-making, basket-weaving, printing, photography, metal-work, sewing, and typewriting.

9. *Special provision for incurable cases.*—Here we approach a difficult side of the subject. Some parents will, no doubt, welcome kind and considerate care for their afflicted children provided that they have free access to them, others may object. For the former class of children, a few hospitals for incurables should be provided; for the latter, some of the most pressing indications may be met by arranging for visitors to look after their welfare, to see that their surroundings are as healthy as possible, that they have necessary comforts and medical aid, and to ensure that they are not a source of transmission of infection to others.

Number of beds required.—From the experience gained here and in America it is clear that, when hospitals for tuberculosis are generally provided, the number of cases suitable for admission will be found to be out of all proportion to that which could possibly have been anticipated. Assuming that there are 7,500,000 children under the age of 15 years in this country, provision should at first be made for one bed in 5000. This means there should be 2500 beds. I venture to think, however, that the number of children under the age of 15 years is nearer 10,000,000 than 7,500,000. If we, however, accept 7,500,000 as the number of children under 15 years of age in this country, I believe the number of 2500 beds will be found too small, and I am inclined to think that 4000 beds may be required when the scheme is in full work. Since, however, under efficient treatment the number of children affected with tuberculosis in this country will decrease, this number of 4000 beds will be lessened ultimately.

Prime cost of beds.—From the statistics given in the reports of various institutions in this country and America we find that the highest average prime cost of hospitals is £150 per head, so that to provide for 2500 beds £375,000 may be required, or if 4000 beds are in working order the prime cost may be £600,000. The average prime cost ought not to exceed £100 per bed, and therefore these estimates may be reduced by one-third.

Cost of maintenance.—It is found that the cost of maintenance of an invalid in such an institution averages £65 to £75 per bed per annum, so that the average cost of maintenance of 2500 beds will be £175,000 a year, and of 4000 beds £280,000. I am of opinion, however, that with efficient management the cost of maintenance should not exceed £50 per bed per annum.

Research.

There are at least four problems of immediate urgency. They are: (1) The development of tuberculosis in cattle and other animals, and the means whereby it can be eradicated; (2) methods of entrance of bovine bacilli into human beings, and of infection of human beings by the tubercle bacillus of man, and how prevention can be obtained; (3) the values and uses of the many forms of tuberculins; and (4) the diagnostic uses and therapeutic application of Roentgen rays. These problems can be attacked by a well-organised Central Research Department consisting of (*a*) a clinical laboratory, (*b*) a bacteriological laboratory, (*c*) a veterinary department including an experimental farm, and (*d*) a Roentgen ray department.

(*a*) and (*b*) may be combined under a superintendent or chief research officer, who should have clinical experience and be a bacteriologist with wide experience and sympathies. He should devote his whole time to the work, and a salary of £600 to £800 a year will be found effectual in securing a first-class man. Under him there will be a bacteriologist of the laboratory who will carry out the more scientific bacteriological investigations, whose salary might be placed at £400 a year; and these officers will require the services of three or four assistants at salaries of £200 to £300 per annum. The veterinary department should be under the superintendence of the chief research officer, and he should have under him a skilled veterinary surgeon. The laboratory should be centrally situated and in the immediate neighbourhood of a tuberculosis hospital; probably the best situation will be near London, in a healthy open site. At the laboratory opportunity should be provided for the surgical officers of the local tuberculosis hospitals or clinics to learn details of clinical examination, of pathological research and of bacteriological methods; and these officers will be required to make investigations in the local tuberculosis hospitals, and work under and receive guidance from the chief superintendent of the central research laboratory. The expenses of such a central laboratory for attacking the problem of tuberculosis, in children only, may be estimated at about £7000 to £8000 a year.

The question of scholarships or research students will arise. I venture to think the present time is not ripe to entertain this question, but eventually provision of £1000 to £2000 a year might be made for this purpose, and scholarships offered when the above scheme is in full working order.

Administration of the Scheme.

Presuming that it is the intention of the National Insurance Act to place the administration of the whole question of the treatment of tuberculous children in the hands of a body of experts nominated for that purpose by the authorities, and not in the hands of an existing Government Department, then the suggestions I beg to offer are as follows. The central direction and control of the scheme shall be in the hands of an Advisory Committee, and on the Advisory Committee the following elements shall be represented: (*a*) Registration and statistics; (*b*) finance; (*c*) building and accommodation; (*d*) expert surgical; (*e*) research; and (*f*) educational.

Harley-street, W.

AN ANALYSIS OF 35 CONSECUTIVE CASES OF BRADYCARDIA.

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IT has become evident, through the increasing facilities for analysing the cardiac rhythm afforded by polygraphic and electrocardiographic methods of examination, that under the term "bradycardia" (by which is meant a pulse frequency of 60 beats per minute or under) are embraced pathological conditions owning various causes, producing divergent symptoms, and responding in different ways to treatment.

One of the first attempts at scientifically classifying such bradycardias was that of Mackenzie.[6] He divided them into four classes as follows. 1. Those where all the chambers of the heart participate in the slow action (true bradycardia). 2. Where the slow rate is due to a missed beat, the ventricle having contracted, the resulting wave being too feeble to reach the wrist. 3. Certain cases of nodal rhythm where the auricle has ceased to beat, or does so synchronously with the ventricle. 4. Where the stimulus is blocked between the auricle and ventricle so that the auricle beats at its normal rhythm, and the ventricle does not respond to the auricle, but pursues an independent and slow rhythm.

Such a division denotes well the types commonly met with. Two qualifying statements, in the light of more recent work however, must be noted. (*a*) With regard to Class 3. These cases are due, as admitted now by Mackenzie, not to a rhythm initiated at the nodal area of the heart, but to auricular fibrillation, in which there is associated a high degree of *a.-v.* block, so that few auricular impulses impinge upon and activate ventricular response. (*b*) With regard to Class 4. Though complete block at the *a.-v.* bundle is in most cases associated with the Stokes-Adams syndrome and a *slow, regular, intrinsic ventricular* rhythm of frequency 40 or thereabouts (bradycardia), cases have been reported[7] [10] in which complete block was certainly present, but the intrinsic ventricular rhythm has lain at 66 or even 70. So that not all cases of heart-block are associated with bradycardia. Despite the latter reservation, however, the above classification still furnishes the most suitable one for the analysis of cases of bradycardia, and will therefore be adopted here.

General observations.—The analysis has been based upon 35 consecutive cases, with the idea in view that thereby the relative type frequencies may represent, to some extent, their probable frequency of incidence in ordinary practice. The cases have been observed exclusively in the larger teaching hospitals and infirmaries. The period of observations was two years. In all cases polygraphic records were gained.

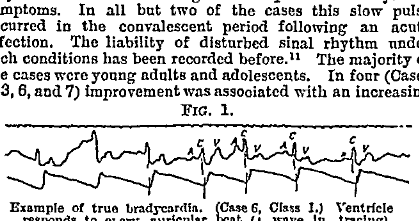
Relative Incidence.

	Cases.	
True bradycardia	7 = 20	per cent.
Missed beat	9 = 25·7	„
Auricular fibrillation	16 = 45·7	„
Heart-block. Auricle active	3 = 8 5	„
Total number of cases	35	

It will be seen that auricular fibrillation is responsible for over one-third of the cases.

Class 1.—The general statement with regard to these cases may be made that none gave rise *per se* to subjective symptoms. In all but two of the cases this slow pulse occurred in the convalescent period following an acute infection. The liability of disturbed sinal rhythm under such conditions has been recorded before.[11] The majority of the cases were young adults and adolescents. In four (Cases 2, 3, 6, and 7) improvement was associated with an increasing pulse frequency up to about 80 per minute. In only one case was there any demonstrable cardiac lesion found. (See Table I.)

FIG. 1.



Example of true bradycardia. (Case 6, Class I.) Ventricle responds to every auricular beat (A wave in tracing). Rhythm irregular, so-called sinal arrhythmia.

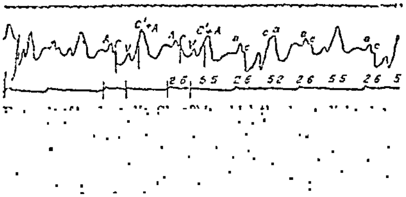
TABLE I.—*True Bradycardia.*

No. of case.	Sex and age.	Disease.	Auricular and ventricular rate.	Rhythm.	Symptoms.	Remarks.
1	M., 30	Mitral stenosis.	50	Regular.	Dyspnœa on exertion. Patient comfortable at time of tracing.	1 V.e.S. noted.
2	M., 23	Convalescent. Rheumatic fever.	60	„	Patient has dyspnœa on exertion. Condition improved, and this was associated with acceleration of pulse (80) 13 days later.	—
3	M., 20	Convalescent. *Lobar pneumonia.*	54	„	* Patient comfortable. No *symptoms.*	Acceleration of pulse associated with improvement.
4	M., 50	Chronic nephritis.	54	Slight respiratory variation.	Patient comfortable. No symptoms.	—
5	M., 15	Convalescent. Acute gastritis.	58	Regular.	Patient comfortable. No symptoms.	—
6	M., 13	Convalescent. Asthma.	52	Very marked phasic variation. (See Fig. 1)	Patient comfortable. No symptoms.	Acceleration of pulse associated with improvement.
7	M., 25	Convalescent after "fit."	60	Regular.	Patient comfortable. No symptoms.	Character of fit unknown. Admitted as "urgency." Acceleration of pulse with improvement.

V.e S. = Ventricular extrasystole.

Class 2.—The dominant type of arrhythmia which was found here was that of coupled beats or bigeminy. The second beat of the couple was not conducted to the wrist, hence the apparent bradycardia. This rhythm was noted in six of the nine cases. In two (Cases 5 and 7) the extrasystoles (responsible for the weaker beats) arose, not regularly but irregularly. One case deserves especial note (Case 4). This was an example of pulsus alternans, in which each alternate ventricular beat was so weak that it failed to reach the wrist. Such phases of alternation were in this case only of short duration. The auricular rhythm in all the cases lay within normal limits—66 to 96. In all the cases but one (Case 3) there was suspected cardial lesion. In none were there any signs of severe loss of cardiac compensation. The periods over which in any given case the bradycardia arose were, as a rule, variable and markedly subject to extrinsic causes, such as exertion, change of posture, or mental excitement. The symptoms associated with the disturbed rhythm were not definite, but some limitation of the cardiac response to effort was usually present. In none of the cases did drugs seem to inhibit the abnormal rhythm, though in two instances (Cases 3 and 6) there was evidence that the exhibition of digitalis tended to give rise to or prolong the abnormal condition. In one of these (Case 3) the patient during labour presented alarming symptoms associated with marked cardiac irregularity, but no tracings were taken which could determine its nature. (See Table II.)

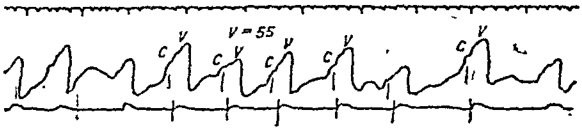
FIG. 2.



Class 3.—Particular interest attaches to this class, not less on account of its frequency than upon the associated symptoms and their close relationship to and dependence upon treatment and prognosis. In all cases auricular fibrillation was present. This was readily demonstrated by the absence in the jugular pulse of the A wave, caused by the normal auricular beat, and also by the associated ventricular arrhythmia. There was in all cases clear evidence of organic cardiac disease, mitral stenosis with varying degrees of incompetence of this valve in ten cases, and cardio- or arterio-sclerosis was present in the remaining six cases. All the cases were in the middle decades of life; sexes about equally affected.

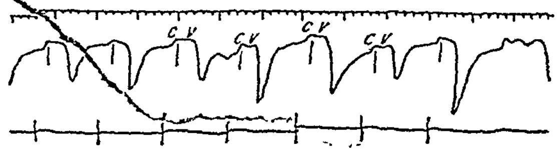
To appreciate fully the clinical significance of this group of cases it is necessary, perhaps, briefly to note the more pertinent facts at present known regarding the influences affecting ventricular activity during auricular fibrillation. The fibrillary movement of the auricle conveys to the ventricle, *viâ* the *a.-v.* bundle and its two branches to right and left ventricles respectively, irregular and numerous impulses which excite this chamber to irregular and rapid contractions, usually in man at a rate of 100 or upwards. The ventricular frequency is proportional to the capacity of the *a.-v.* conducting channels to conduct to the ventricle the auricular impulses. If, now, the *a.-v.* bundle is partially blocked, the result is that a lessened number of auricular impulses reach the ventricle, and this chamber consequently beats at a slower frequency.[6] With progressive increase in this blocking this slowing can be induced to a point much lower than the normal ventricular frequency of 70 or thereabouts. Such cases, then, may become bradycardial, and it is in fact these cases which form the majority of the above list. In such cases, therefore, we may conclude that there exists, not only auricular fibrillation, but also a high degree of *a.-v.* block. It is especially to be noted that though slowing of ventricular rate results, the irregularity remains. Pushing this blocking process to its logical conclusion, however, we should expect to reach a point at which the block was complete and no auricular impulses could reach the ventricle. What happens, then, in that case, just as in ordinary heart-block, is that the ventricle assumes its own independent rhythm, regular in character, of 40. In the above series it will be noted that there were four instances of this, the proof resting in the fact that the ventricular rhythm is regular and at about 40. Similar examples of the association of auricular fibrillation and complete heart-block have been reported—Lewis and Mack,[5] Falconer (A. W.) and Dean (G.),[3] Lewis (Th.) (experimental production of),[6] and Lea (C. E.).[4]

FIG. 3.



(Case 9, Class 3). Auricular fibrillation (note the absence of any A wave in the jugular tracing), together with irregular ventricular rhythm of slow frequency due to a high degree of *a.-v.* block.

FIG. 4.



Auricular fibrillation associated with complete *a.-v.* block. Note the absence of the A wave in the jugular tracing and the regular ventricular rhythm at frequency 37.

Since in all the above cases but two the bradycardia was of gradual onset and associated with the exhibition of digitalis or its allies, it is suggested that this drug exerted an especial blocking effect upon the *a.-v.* conducting tissues. Such an inference has been supported by a large body of clinical and experimental evidence.

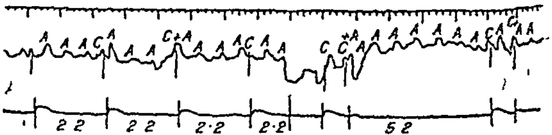
To come now to the cases themselves, the symptoms associated with the bradycardia were variable. In all the cases in which digitalis had been given the general condition of the patient was better than before. In three cases, however, despite the slowing, there were unfavourable signs (Cases 1, 6, and 7.). In Case 1 there were præcordial distress and a sense of constriction about the chest. In the other two cases the patients died during the bradycardia, both with considerable signs of loss of compensation, œdema, and so forth. The rest of the cases presented tolerable comfort. This was especially noticeable in those cases where there was complete heart-block (Cases 5, 10, 11, and 16). In three of these cases the condition was compatible with a considerable degree of exertion. In the three serious cases the ventricular frequency was low; 36 in two, and in the other case (7) the full ventricular beats were 36, but there was a bigeminy due to extrasystoles. (See Table III.)

TABLE II.—"*Missed Beat*" *Bradycardia.*

No. of case.	Sex and age.	Disease.	Auricular rate.	Ventricular extrasystole.		Treatment.	Remarks.
				Time.	Frequency.		
1	F., 51	Mitral stenosis.	1. 120 2. 80 Radial = 40	None. Synchronous with auricular beat.	Each cycle.	—	Bigeminy with slower auricular rhythm; not with rapid. Occasional phases when V.e.S. arise irregularly, giving an irregular radial pulse.
2	M., 72	Cardio-sclerosis.	68 Radial = 34	"	"	—	Bigeminy induced by holding breath. Occasional phases where V.e.S. absent, or irregular in incidence.
3	F., 30	Functional?	78 Radial = 39	"	"	Digitalis (small doses).	Bigeminy more marked after digitalis.
4	M., 59	Chronic nephritis. Cardiac dilatation.	85 Radial = 43	Pulsus alternans.		—	The smaller beats not conducted to radial, giving half frequency. Such phases only occasional. Patient died.
5	M., ?	Arterio-sclerosis.	72 Radial = 54	V.e.S. just precedes auricular beat.	Irregular, but frequent.	—	—
6	M., 35	"	80 Radial = 40	Synchronous with auricular beat.	Each cycle.	Digitalis, ♏5 t.d.s.	Occasional phases when V.e.S. not present. Pulse then regular at about 78.
7	M., 59	Arterio-sclerosis. Paralysis agitans.	66 Radial = 56	V.e.S. irregularly placed.	Irregular, but frequent.	—	Digitalis seemed to have no effect in altering rhythm. After a swallow, ventricle slowed for three succeeding beats to a regular 36 per minute.
8	M., 39	Arterio-sclerosis.	96 Radial = 48	Synchronous with auricular beat.	Each cycle.	—	Incidence of bigeminy variable. Sometimes, V.e.S. only single and infrequent; at others, frequent and occurring irregularly.
9	M., 23	Mitral stenosis.	80 Radial = 40	"	"	Digitalis had no marked effect.	Bigeminy usually came on with changed posture. No single V.e.S. noted. Arrhythmia, when present, always of bigeminal type.

Class 4.—These cases merit brief notice here. Many cases of true heart-block continue to be published, a fact which demonstrates their relative frequency of occurrence. The main clinical features present much similarity. The three cases of this series present no feature calling for comment. (See Table IV.)

FIG. 5.



Typical heart-block. (Case 1, Class 4.) Auricular frequency 90, ventricular 26 per minute. Complete dissociation of the two chambers. Note a ventricular pause of 5·2 seconds' duration.

The clinical features of bradycardia are mainly dependent upon the character of ventricular response to auricular activity Of the four classes noted the easiest to understand, perhaps, are the cases of true bradycardia, due to slow auricular rate and apparently unaffected by changes in the *a*-*v* conductivity Such cases present no marked clinical features, and no treatment is necessary The remaining three classes depend upon the interrelationship between auricular activity and *a*-*v* conductivity With regard to the latter factor it must be noted that changes in the power of conductivity may affect not only the main bundle of His, but also one or other or both of the branches (right and left) as they pass into the right or left ventricular musculature respectively The lowest form of block which we could consider, then, would be one which involves one [illegible]

excitability must play an important part, and it is probably the varying relationships between these two factors that explain the variable characters It is suggested, however, that with regard to the cases in Class 2, where extrasystoles arose in many instances in regular manner, and in all with considerable frequency, it may be reasonably assumed that there is altered relationship between the conducting channels and the ventricular musculature, and that this alteration is in the direction of an enhanced ventricular irritability or an associated alteration of conductivity Regarded in this sense, the cases of Class 2 may be taken to represent the combination of a normal auricular activity (the auricular frequency was in all cases within normal limits) and an altered *a* *v* conductivity The clinically observed fact that in these cases the inception of the abnormal rhythm, due to the extrasystoles, was usually dependent upon altered extrinsic conditions, such as exertion, mental excitement, or even posture—conditions as a rule, associated with alterations in auricular frequency—presents a suggestive analogy to certain cases of incomplete heart block (main bundle) For in these cases unlike those in which the block is complete, the ventricle is still under auricular influences, and it is in just these cases that with exertion attacks of syncope are prone to arise [6] Such fits are due to the increasing degree of block consequent upon an accelerated auricular frequency and the analogy of such fits may be made to the less acute, but nevertheless present symptoms occasionally induced by the inception of regularly recurring extrasystoles In both cases there appears to be an altered relationship between auricular activity and *a* *v* conductivity

TABLE III—*Cases of Auricular Fibrillation*

No of case	Sex and age	Disease	Auricle	Ventricle				*a* *v* conductivity	Treatment	Remarks
				Normal + V e S	V e S	Incidence of V e S	Ventricular rhythm			
1	F, 17	Mitral stenosis	Fibrillating	72	36	Each cycle	Irregular	Low	Tr digitalis m 5 t d s 37 days	Pulse before treatment at 80 *Patient has occasionally feeling of* precordial distress
2	M, 30	Arterio sclerosis	„	1 60 2 40 3 72	— — 36	— — Each cycle	„ „	Moderate Low	— Pill diuret t d s 18 days „ 23 „	Patient dyspnœic „ comfortable „ „
3	M 35	„	„	55	—	—		„	—	Patient had periods when rhythm regular and faster Exertion led to irregularity
4	M 69	„	„	1 50 2 60	— —	— —			—	Patient in good general condition
5	F, „	Mitral stenosis		1 60 2 40	30 40	Each cycle —	Regular „	Ht block	—	Stages of block and inception of V e S vary from period to period General condition of patient good
6	F, 73	„	„	1 72 2 65	36 65	Each cycle —	Irregular „	Low	Digitalis	Patient in considerable distress Died day after tracing taken
7	F, 42	„	„	36	—	—			Nativelle granule daily for 43 days	Much cyanosis and œdema Patient died
8	M 24	„	„	72	24	Irregularly placed		„	„	Patient has much dyspnœa on exertion
9	F, 58	„	„	55	—	—			No digitalis	Marked right side heart dilatation Patient fairly comfortable
10	M, 58	Arterio sclerosis and nephritis	„	1 42 2 61	— 13	— Irregularly placed	Regular	Ht block Low	Strophanthus m 15 t d s 7 days	When block present patient comfortable Patient died later, after block had passed off
11	M, 44	Mitral stenosis	„	38	—	—		Ht block	Digalen m 10 t d s 33 days	Patient comfortable No symptoms
12	F 42	„	„	45	—	—	Irregular	Low	Tr digitalis m 10 t d s, 15 days m 5 t d s, 23 days	Patient comfortable Phases of slow and more rapid beats varying from 30 to 65 per minute such phases only four seconds long
13	M, 27	„	„	60	—	—	„	Moderate	Tr digitalis m 5 t d s	—
14	M, 42	„	„	48	—	—	„	„	„	—
15	M, 35	Arterio sclerosis	„	60	—	—	„		„	—
16	M, 42	„	„	30	—	—	Regular	Ht block	No digitalis	Patient fairly comfortable

defective The character of the ventricular beat is abnormal in form [1] It has been found, also that the type of beat thus produced *is identical with the usual forms of extrasystoles* clinically and experimentally observed Again, digitalis is a drug which is said to exert distinct influences upon the conducting tissues in the direction of lowering the power of conductivity Such action has been noted mainly upon the main bundle of His, but it has been shown that with toxic doses of this drug, in animals, the ventricle [illegible] of an extr [illegible] to suggest [illegible] are due to defective conductivity in one or other of the *a*-*v* branches Such a conclusion, however, is not fully warranted, and the exact genesis of the extrasystole as clinically seen is still undetermined In dealing with conductivity within the ventricular musculature, as represented by the branches, the associated conditions of the ventricular

Coming now to those conditions where there is demonstrable blocking in the main bundle of His, these are well exemplified in Classes 3 and 4 *In Class 3 the state of the* auricle is the same in all—namely, fibrillating The variant effects in individual cases from time to time and in different cases are mainly attributable to changes in conductivity. Such conductivity changes are in all cases in the direction of depression, and in nearly all the cases, but not all, the cause of this was digitalis. The action of the drug is exerted in the main upon the bundle of His. This fact is evidenced because the slowing in many cases was not associated with extrasystoles, and also because in three instances complete block was obtained. Not all cases, however, presented this feature. Just as in Class 2, and with even more reason, there is evidence that the alteration might not be wholly confined to the main bundle, but might influence also one or other of the branches. Such evidence seems to be afforded by the frequent appearance of extrasystoles. These arose in some cases regularly, as in Cases 1, 2, 5, and 6; in others less regularly. In all the cases where the *a.-v.* block was complete their presence was noted.[2] In Case 10 the continued administration of strophanthus after the inception of complete block resulted in occasional paroxysms of tachycardia, due to rapidly successive nodal or ventricular extrasystoles. To what extent the presence of these extrasystoles prevents or fails to influence the inception of the independent ventricular rhythm, so typical of complete block, there does not appear to be sufficient evidence to say.

Conclusion.—From a consideration of the above cases it seems reasonable to conclude that in most cases the cause of bradycardia (excluding Class 1) may be attributable to altered *a.-v.* conductivity, that such a cause is responsible not only for Classes 3 and 4, but also possibly for Class 2; and that in most cases of auricular fibrillation, but not all, the cause is digitalis.

TABLE IV.—*Complete Heart-block; Auricles Active.*

No. of case.	Sex and age.	Disease.	Auricle.	Ventricle.		*a.-v.* conductivity.	Remarks.
				Frequency.	Rhythm.		
1	M., 66	Cardio-sclerosis.	90	30	Regular.	Block complete.	Patient died. Digitalis tended to increase frequency of syncopal attacks.
2	M., 38	Acute myocarditis.	126	34	,,	,,	Patient died. Suppurative myocarditis involving especially the interventricular septum.
3	M., 32	?	60	36	,,	,,	Patient subject to syncopal attacks.

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Manchester.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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NOTE ON A CASE OF RUPTURE OF A NORMAL SPLEEN.

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A MAN, aged 32 years, was admitted into the Campbell Hospital at 10 A.M. suffering from abdominal pain and tenderness. He stated that this from the first was due to a blow he had received three hours previously. His general appearance was anxious; the pulse was 76 and of fair volume, the respirations were not hurried, and there was no abdominal distension, but some pain on pressure which was not definitely localised. The shifting dulness on abdominal percussion was the most marked symptom of abdominal mischief.

The patient was immediately prepared for operation and by the time this was effected his condition had undergone a complete change: the pulse-rate had increase to 100 and the volume was markedly smaller, the respirations were hurried, and the dulness on percussion was very considerable, especially over the pubic region. A median incision was made, and when the abdominal cavity was opened a large quantity of fluid blood escaped and masses of blood-clot had to be removed. The abdominal incision was continued up towards the ensiform process when it was seen that the hæmorrhage proceeded from the lower margin of the spleen. A transverse incision four inches long was then made, the vessels were ligatured, and the spleen was removed. The patient's condition at this time was critical. An intravenous saline injection of four pints was given, and after all the blood had been removed the abdominal cavity was filled with hot saline and the wound was stitched up by through-and-through sutures. Recovery was practically uneventful, but brachycardia was a marked symptom for some time.

The interest in this case lies in the facts that the patient was a healthy well-developed man, the spleen apparently normal in every respect, and the blow received not severe. The rupture was an inch in length, situated along the lower margin. The blood-count six weeks after operation was as follows: Red blood corpuscles, 4,200,000; white blood corpuscles, 17,600; polymorphonuclear, 28 per cent.; transitional, 10 per cent.; large mononuclears, 12 per cent.; lymphocytes, 50 per cent.; and eosinophiles, *nil.* After six months: Hæmoglobin, 74 per cent.; red blood corpuscles, 4,000,000; white blood corpuscles, 14,000; polymorphonuclear, 72 per cent.; large mononuclears, 8 per cent.; lymphocytes, 20 per cent.; and eosinophiles, *nil.* After one year: Hæmoglobin, 93 per cent.; red blood corpuscles, 5,100,000; white blood corpuscles, 8,000; polymorphonuclear, 40 per cent.; large mononuclears, 20 per cent.; lymphocytes, 28 per cent.; and eosinophiles, 12 per cent. These figures tend to confirm the observations of Y. Noguchi which he reported last year in the *Berliner Klinische Wochenschrift*, of which an interesting *résumé* is given in the January number of the *Medical Review.*

Calcutta.

A CASE OF LARGE DERMOID CYST SITUATED OVER THE STERNUM.

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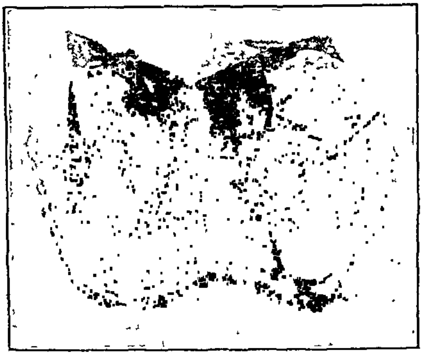
THE patient, a girl aged 17, was sent to me by Dr. W. Allan, of Govan, and was admitted to the Elder Hospital on March 21st. The history was to the effect that a small red mark existed *from the time of birth* in the middle line a short distance below the episternal notch. Little difference was noticed in the condition until about the age of 12, when it began to increase in size, appearing at first as a thickening of the skin under the mark, which, as it grew, became more tumour-like. Shortly thereafter, when the swelling was of about the size of a hen's egg, but flatter, it was first shown to a medical man, who did not advise surgical interference. Four years ago, when the patient was 13 years of age, the tumour increased rapidly in size, became much softer, and caused a sensation of breathlessness, which ultimately induced her to see Dr. Allan.

On examination a soft, fluctuant swelling, of the size of a large orange, was found, situated in the middle line of the chest, rather above the level of the breasts, which extended slightly into the prominence of the left breast when the patient lay flat. Above it came to within an inch of the episternal notch. In contour and general appearance it roughly resembled a third, median, breast without nipple. Numerous dilated veins were seen on the surface, and the skin over the most prominent part, which was situated in front and slightly underneath, was reddened and very thin. There was no tenderness on pressure, but the patient complained of an increase in the slight choking sensation which she always had; and on relaxation a curious, almost crepitant sensation was felt by the examining fingers, both symptoms suggesting the possibility of some connexion with the interior of the chest, and perhaps the lung, which, however, was ultimately found not to exist. The tumour was distinctly fluctuant, but there was no thrill. It was not translucent, nor was it lobulated. It moved freely on the surrounding tissues, and the skin was freely movable over it, except at the prominent part, already mentioned, on the antero-inferior surface. The patient in other respects was normal and in excellent health.

Operation.—The tumour was easily removed through a vertical incision extending for about three inches down from a point one inch below the sternal notch. In spite of care, it was opened at the point where the skin was very thin, and fully an ounce of opalescent fluid escaped, some of which was preserved and examined. The interior at the same time was seen to be occupied by sebaceous-like matter in the form of innumerable minute granules, which, however, became matted together in the process of enucleation of the tumour, which presented no difficulties. There was no connexion with the sternum nor mediastinum, nor was there a depression in the bone. The patient made an uninterrupted recovery, and subsequently expressed herself as entirely free from the breathless feeling. Although no skin was removed at the operation, it was observed that after removal of the tumour there was no redundancy such as had been expected. It may be presumed, therefore, that the breathless sensation was due to slight tightness of the skin of the chest, caused by the presence of the tumour.

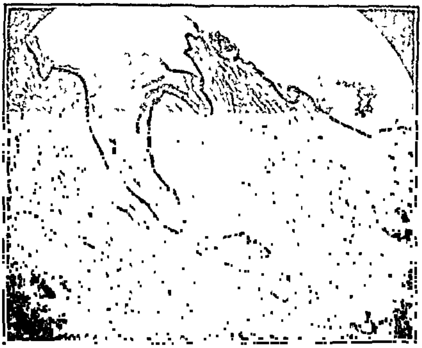
FIG. 1.



Shows the tumour after removal and hardening. The tumour has been divided longitudinally and shows skin lining and pultaceous mass. (Reproduced from photograph.)

Pathological examination.—The fluid removed from the cyst was sterile, and contained numerous degenerate epithelial cells. The cyst itself, after hardening, was divided longitudinally, and was found to consist of a capsule of connective tissue externally and skin internally. From the skin surface numerous very fine hairs protruded. This capsule was complete, but whereas the skin was thick and well formed on the deeper aspects of the tumour, it became thinner as the anterior aspect was approached, until around the part ruptured at the operation the presence of skin was doubtful. The cavity of the tumour, after escape of the fluid and subsequent hardening, was entirely occupied by the pultaceous matter, embedded in which were a few fine long hairs. The pultaceous matter, however, had entirely lost the striking granular appearance which arrested attention when the tumour was first opened. (Fig. 1.) A microscopical examination of portions of the skin lining of the cyst showed comparatively little attempt at papilla formation, and hair follicles were very scarce. On the other hand, glands were fairly numerous, opening on the skin surface, as a rule, by greatly dilated ducts. (Fig. 2.)

FIG. 2.



Low power microphotograph of skin lining showing glands and greatly dilated duct.

So far as the writer can ascertain, dermoids of the front of the sternum are extremely rare; indeed, the only cases reported which he can find are those referred to by Bland-Sutton,[1] and he has therefore thought it desirable in reporting this case to give as full particulars as possible regarding it.

Glasgow.

Medical Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Conduction Defects in the Heart.—Intestinal Toxæmia.

A MEETING of this society was held on July 2nd, Mr. J. M. COTTERILL, the President, being in the chair.

Dr. W. G. SYM and Mr. A. A. SCOT SKIRVING showed a female, aged 24, after excision of an orbital fibro-sarcoma by Krönlein's method. She had complained of slight impairment of vision in the left eye for about seven years; proptosis was first observed five years ago, and a feeling of heaviness without pain during the past four years. The pupil was markedly dilated; the movements of the eye were normal; there was no diplopia; the fundus was slightly congested and œdematous. The operation, performed on Jan. 10th, 1913, revealed an encapsulated soft tumour of the size of a large grape, closely applied to the outer and posterior aspect of the globe. The result had been satisfactory except for impairment of movement in the external rectus.

Mr. SCOT SKIRVING exhibited an inveterate case of Tuberculosis of the Left Humerus and Scapula treated by ileosigmoidostomy in a girl aged 9 years. Since the operation distinct improvement had resulted; some of the sinuses had closed and others were healthier.

Dr. G. D. MATHEWSON communicated a paper on Conduction Defects in the Heart, with lantern demonstration. He drew attention to the value of the electrical or galvanometric method in the recognition of lesions in the conducting tissue of the heart. To be able to determine what was the condition of the heart muscle was of the utmost importance as regarded prognosis. As myocardial lesions frequently did not give rise to any striking or distinct physical signs, their recognition was not so easy as was that of valvular lesions accompanied by murmurs. A lesion in the auriculo-ventricular bundle was often only part of a more widespread myocardial change, and therefore clear demonstration of any defect in conduction became of importance. When a lesion existed in the main stem of the bundle the resulting condition of heart-block might be either partial or complete. In the latter there was no transmission of stimuli from auricle to ventricle, and the auricles became dissociated from the ventricles in their action. The ventricles assumed an independent rhythm of about 30 per minute. This complete block could be recognised by ordinary clinical methods, as, for example, pulsation in the jugular veins. When the block was only partial the only effect in the mildest cases was to lengthen the interval between the auricular and the ventricular systole. In a more severe case the stimulus failed from time to time to pass over the bundle to the ventricles, so that they missed a beat and gave rise to an intermittent pulse. The cases of heart-block to which Dr. Mathewson referred were produced by a lesion that involved the main stem of the bundle, but it was possible for a lesion to occur which left this main stem intact and affected only one of the two main branches into which the bundle divided for the supply of the two ventricles. This was at present unrecognisable by ordinary clinical methods and its detection depended entirely on the galvanometric method. It had to be remembered that vagus stimulation might be the cause of the heart-block, and that when a conduction defect existed in the heart vagal stimulation might further depress the conductivity. Digital pressure over the vagus in the neck had produced dropping out of some of the ventricular beats. In most cases interruption of conduction by one branch was a permanent feature when it had once been established. The recognition of minor degrees of conduction defect had a practical bearing upon treatment. It was found that the widely used drugs digitalis, strophanthus, and squill tended to depress conductivity in the auriculo-ventricular bundle. These were therefore contra-indicated when any such defect already existed in the heart. Unfortunately, no treatment was of avail in improving conduction in most cases. The most hopeful were those in which the lesion interfering with conduction was a gumma. Numerous records of cases were shown, and these were obtained not mechanically like those from the pulse or apex beat, but were records of variations in electrical potential arising in consequence of the heart's contraction.—Dr. WILLIAM RUSSELL said that he was impressed by the extraordinary skill and ingenuity in the methods by which the heart's action could be revealed. He thought, however, that the tendency was to overvalue the clinical importance of many of these observations. He thought that these later methods should be only supplementary to the past methods of cardiac examination. Cases of heart-block were often diagnosed without the aid of the electrocardiograph; the cardiac impulse gave a certain number of beats, while the jugular beats were two or three times as frequent. The significance of this inquiry lay in the involvement of certain muscular bundles, but one might get extensive myocardial affection without involvement of these bundles.—Dr. WILLIAM T. RITCHIE said that the electrocardiograph gave information which was not attainable by other means. Auricular fibrillation in arterio-sclerosis could only be shown by the string galvanometer, and so also was frequently the case in paroxysmal tachycardia due to fluttering of the auricles. It also gave information as to the tone of the heart muscle, and allowed one to localise certain lesions in that organ.

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[1] Bramann, Archiv fur Klinische Chirurgie, 1890, Band xl., p. 101; Cahen, Deutsche Zeitschrift fur Chirurgie, 1891, Band xxxi., p. 370; Clutton, Transactions of Pathological Society, 1887, vol. xxxviii., p. 393.

Dr. RUSSELL introduced a discussion on Intestinal Toxæmia. He alluded to the great extent of the field included in the title. He stated that two factors had to be recognised: (1) the individual or personal factor; and (2) the substances dealt with (the extraneous factor). Under the first the following points must be borne in mind: (*a*) the great subtilty of the chemical dynamics of the animal body, within average or normal limits, as seen in families and in individuals; (*b*) individual idiosyncrasy to alimentary toxæmia from food, beverages or drugs. Dr. Russell mentioned instances which had come under his own observation, as where egg albumin in any form or quantity acted as a poison; where haddock alone and no other fish acted as a poison to a certain individual; where tea was a deadly poison to the wife of a medical man; where barley in any form, even in malt liquor, was toxic; or as regarded drugs, where potassium iodide could not be taken by a patient who yet could take large doses of the sodium salt with impunity, or where a single grain of quinine caused cinchonism. Such idiosyncrasies were illustrations of the extreme subtilty of the chemical processes in the human body. Under the second factor, or the substances dealt with, it would be found that it had such a close relationship to the first that it could not be dealt with separately when the effects or results were looked at clinically. The broad problem before the clinician was based upon the fact of the prevalence of constipation, or colon stasis, to use the polite modern euphemism. It was at the root of many of the manifestations of alimentary toxæmia, though one had to remember that many cases of constipation were not associated with toxæmia. In old people very often stuttering of speech, weakness of legs, or fulness in the head were symptoms due to constipation, and in younger persons there was often marked response to the retention of excreta. From the consideration of this problem there might be excluded the person who ate in excess, and who digested and assimilated what he ate and became fat, plethoric, and gross. The problems in constipation were: 1. The effect of constipation upon the secondary digestion, including in this the excretory side of the process and the consequent retention of the waste products of cell metabolism. The evacuation of the alimentary contents meant evacuation of the hepatic excretion. The liver was an organ which excreted waste products into the bowel, and if these were not carried away they were again carried through the liver and embarrassed its action. The liver prevented the passage of deleterious substances from the abdomen into the general circulation, and constipation hindered this action. 2. The absorption, and the effects produced by such absorption, of bacterial toxins. This aspect of the problem was a natural development of our modern knowledge of bacteriology, and in dealing with it the ordinarily ill-balanced tendency to consider this, the newest aspect of the subject, to the exclusion of others, had been seen. We knew little about the action or fate of toxins even when they were absorbed or how they were dealt with in the liver. Yet we knew for certain that the most important aspect of this subject was the absorption of products of putrefactive processes in the intestine, the result of proteid feeding. Cirrhosis of the liver and kidneys was not observed in vegetable-feeding animals, such as oxen and sheep, while in the carnivorous animals, such as the cat and the dog, it was frequently observed. The question of the absorption of the products of intestinal putrefaction must always be regarded from the standpoint of the accompanying constipation, which impeded and gravely hindered the detoxicating function of the liver; and that the whole question of the passage of such injurious products into the blood might be removed with the removal of constipation. It was not claimed that we knew the number of these toxins; that we knew the effect upon the animal body of any one of them, save some of the most potent of the putrefactive products; and still less of the effect of combinations of them. The whole problem was complicated by the fact that symptoms might be due to idiosyncrasy to common food substances, and by probable variations in the susceptibility of the ductless glands to different food substances. 3. The reflex effect of constipation upon the vascular system. This aspect of the question had been ignored—passed by as an unrecognised factor. This abdomino-vascular reflex had a distinct influence in producing phenomena which were erroneously referred to toxæmia. Both as regarded the influence of toxins absorbed and of constipation acting reflexly, the individual susceptibility played an important part. The skill of the clinician lay in his power of giving to each factor its due and correct place in each individual case, realising that no single factor was the sole factor.—Professor H. ALEXIS THOMSON said that assuming that there occurred a condition of stasis in the colon which required operative measures for its relief, surgeons were not yet in a position to express an opinion based on experience as to the method of operation to be selected. The choice ranged from a simple appendicostomy, through various forms of short-circuiting or entero-anastomosis, to resection of a part or of the whole large intestine. The choice would be mainly influenced by the comparative safety of the operation and by its efficacy in restoring the function of the bowel.—Dr. D. **CHALMERS WATSON** said that he would have preferred to hear more about symptoms and treatment. There were two distinct groups—(1) those cases which were definitely constipated and where the constipation was corrected early, the great majority of patients recovered; (2) cases associated with constipation which had existed for a long time. He habitually made a careful examination of the stools, as without such investigation he could form a very inadequate opinion. He asked if the fact that the intestinal secretions were found to be acid led Dr. Russell to do anything in the way of treatment? It might be that after weeks of continuous treatment along the most approved lines the condition remained as before; this was the late effect of constipation, medical measures failed and surgical treatment had to be resorted to. Very little was known about the etiology of intestinal toxæmia, [illegible] obtain a pure culture of B. coli. [illegible] of organisms was found. If [illegible] known, a little more light would be obtained. He was perfectly certain that if the condition were recognised early and treated properly these cases would never require surgical treatment. As regarded treatment, he began by starving the patient altogether except for some skim milk, and from this through a whole grade of diet in a certain time. How should one assume that certain rheumatic conditions were the result of intestinal toxæmia? His answer was that almost invariably when the deranged condition of the bowel had been corrected the symptoms disapeared.—Dr. E. F. T. **PRICE** said that in the last few years they had examined some 150 colons by means of the X rays. He did not think that the chemical constitution of the cell sufficiently explained the condition of stasis. He had come to the conclusion that the physician did not know how to treat these cases either early or late, and Dr. Chalmers Watson's hope that they would be eventually kept from the surgeon's hands was a vain one. The radiographer not only saw the stasis, but also the amount of the abdomen which was affected. If the amount of atony and the amount of bowel affected could be shown, the only operation was to remove that affected portion. When one saw the cæcum, the hepatic flexure, and the first part of the colon in an atonic, useless condition, it was better to remove it. He did not think that the radiographer (certainly not in Edinburgh) had got much encouragement. The condition was progressive, and if taken soon enough the surgeon, and the surgeon alone, could do any good; he did not think the physician could.—Dr. G. **LOVELL GULLAND** said that personally he found that if patients were really suffering from constipation or not they could be cured. In the first place, one had to find out whether the constipation was due to some bowel defect or to some other cause, and, further, whether all the symptoms which were present were due to constipation or to something else. None of the speakers had alluded to what could be learnt from the urine. Poisons were absorbed from the bowel and could be recognised in the urine. He agreed as to the importance of an examination of the fæces, but there was just the difficulty that because one found a large number of organisms were they really doing great harm to the patient. Examination of the fæces afforded an excellent method of finding out what had been digested in order to control the diet, but not of showing what changes had taken place in the wall of the intestine. This was, perhaps, better obtained by examining the blood pressure, urine, general look of the patient, &c. One often had to look far away for a possible cause of constipation, as for example, the teeth. There *was often great difficulty in determining whether the stomach* contained the primary poison or not.—Mr. E. W. **SCOTT CARMICHAEL** said that lately he had a striking case under his charge. It was a child, aged 2½ years, with a very large abdomen, rickety, walked with typical gait, was constipated, and had enlarged liver; she was listless and apathetic, and had hardly commenced to speak. On operating it was found that the child had an extremely long pelvic colon. Lane's operation was performed, and almost immediately afterwards there was a full evacuation of the bowels, and since then the bowels had acted every day. The liver diminished in size, showing that intestinal toxæmia had an important bearing on this condition, and the child was now bright and talkative.—Dr. R. A. **FLEMING** said that in many cases there was diarrhœa and not constipation—in other words, the patient was perfectly comfortable as long as he was constipated, but more particularly if there was colitis. As regarded X rays, a little boy in his ward was X rayed and the stomach was found to extend to the symphysis pubis. A bismuth meal was given at 7 A.M. and he was X rayed at 1 P.M., and no bismuth was found in the stomach. He was examined after a second bismuth meal, and the meal was demonstrated at the lesser curvature. He was surprised to find how very rapidly the bismuth passed off, and no doubt the posture of the patient had something to do with it.—Dr. **MICHAEL DEWAR**, Dr. **R. A. LUNDIE**, and the **PRESIDENT** took part in the discussion, and in reply Dr. **RUSSELL** said that he thought some of the members might have given a little of the special information which they had. In the discussion no doubt different speakers had been to a certain extent talking of totally different degrees of things. The effect of constipation and all that it implied in certain cases of rheumatism was undoubted. He knew a lady with a simple articular rheumatism of the shoulder joints and fingers who, if she eats a piece of beef to-day, finds her joints swollen to-morrow. He had seen three patients who had been diagnosed and regarded as epileptics and who had many epileptic seizures, whose epilepsy he was quite satisfied was due to intestinal conditions, and by attending to these the epileptic seizures disappeared. Then there were the advanced cases; he fancied that physicians could diagnose them, though they could not always rectify them; and it might be necessary to ask the surgeon to assist them towards rectification. The radiologist was from time to time of great service in confirming diagnosis and in assuring the relatives of the patient that surgical interference afforded the most hopeful outlook. He would warn Dr. Price that because he had examined 150 colons he must not rashly assume that there was a great body of the people suffering from constipation and who could only be cured by surgical means. Personally he had not seen much of the kind of case to which Dr. Chalmers Watson had referred. He either saw them so bad that he was sure he could not cure them, or he saw them at stages at which he successfully treated them. There was no doubt that the medical treatment of constipation and of the conditions which accompanied it was unquestionably the fine art in medicine. His experience was that the choice of the laxative by which the bowels were enabled to act regularly and efficiently required very great care and consideration. The physicians did not as a rule see ordinary cases of constipation; they only saw them when the affection was producing symptoms. Not very long ago he heard of the ex[illegible] He had b[illegible] patient's m[illegible] bowels move to a minute every day. He knew of a patient who, being assured that if she took a glass of water at a certain hour, and a quarter of an hour later encouraged Nature to act, she was completely cured of most obstinate and inveterate constipation

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THE AFTER-CARE ASSOCIATION.—This association, whose objects are to assist cases discharged recovered from asylums for the insane, has just held two important meetings. The first took place on July 4th at All Saints' Vicarage, Highgate, by the kind invitation of the Vicar and Mrs Hawkins. The chair was taken by the Hon. John Mansfield (Lord Chancellor's Visitor in Lunacy) The meeting was addressed by Mr. Stanley Keith, Mrs. Sikes, and Mr [illegible] col[illegible] Th[illegible] by [illegible] chair was taken by Sir James Moody. The meeting was addressed by Sir George Savage, Dr. Percy Smith, and Mr. Thornhill Roxby. There was again a very good attendance, much interest being shown in the work of the association and a useful addition to the funds obtained. A vote of thanks to the host and hostess was proposed by Dr. Campbell and seconded by Dr. E. S. Pasmore, to which the chairman suitably replied. This charity is the only one of the kind in Great Britain, and assists cases from all parts of the country.

The important subject of tuberculous caries of the spine has been very clearly described, and we are pleased to see that the authors have given a number of photographs showing the clever devices of Mr. H. J. Gauvain.

The very difficult question of the treatment of trigeminal neuralgia is excellently detailed. Of the operative measures the authors say that if more than one branch of the fifth nerve is involved extirpation of the Gasserian ganglion should certainly be undertaken, as the ganglion is diseased in such cases, and it will be only waste of time to undertake any minor operation. As, however, the operation is very severe and undesirable consequences may follow, such as paralysis of the muscles of mastication and trophic changes in the cornea, they advise that other methods should be tried previously if the disease is limited to one branch. The injection of alcohol may be first employed, and if this fails recourse may be had to neurectomy. The section dealing with plastic surgery is good, and the numerous illustrations are useful; and the same may also certainly be said about the chapters dealing with the treatment of hare-lip and soft palate. In the latter chapter the authors describe the three methods of operating—namely, Langenbeck's, Davies-Colley's, and Brophy's—and they agree with most surgeons in giving the preference to Langenbeck's.

As in previous volumes, the illustrations are numerous and good.

Electro-Therapeutics for Practitioners. By Francis Howard Humphris, M.D. Brux., F.R.C.P. Edin., &c., President of the American Electro-Therapeutic Association. London: Edwin Arnold. 1913. Pp. 243. Price *8s. 6d. net.*

This book is not a systematic treatise on electro-therapeutics, as might be supposed from its title. It is a series of essays on various subjects that come within the scope of the title, as well as of some that do not. As the author gained his first knowledge of electro-therapeutics in America and is at the present time President of the American Electro-Therapeutic Association, we may fairly take the views here stated as representing modern American practice.

While most electrical methods are dealt with more or less, most of what the author has to say relates to the use of currents of high potential and high frequency, either singly or combined. This includes the various forms of static electricity, high-frequency currents as generally understood, and diathermy, or electrothermic penetration, as the author prefers to call it. Chapters are also given on the use of the high-power incandescent electric lamp and the X rays. Ionic medication receives some attention, especially in joint lesions, and a chapter is devoted to the modern electrical treatment of obesity. In the compilation of the work the author has had the help of Mr. W. Hampson, who contributes most of the references to the use of the X rays, and Dr. J Curtis Webb explains his methods of treating some disorders of the alimentary system.

With regard to the claims made as to the efficacy of the static machine in the treatment of many disorders, this volume is as profuse as many that have gone before, and though the author states in his preface that the results may be imitated by anyone who takes the trouble, the fact remains that such results are very difficult to imitate in the opinion of many who have tried under very favourable conditions. We need not labour this point, but this difficulty is probably one reason why static electricity has not made the progress that should follow its use were the results as constant as the writer asks us to believe. We are of opinion that the more firmly the operator believes in the efficacy of static electricity the better the results he will obtain—better than those obtainable by anyone who is critical, though his technique be never so accurate. Notwithstanding what the author says to the contrary, we are still indisposed to dissociate the psychic element from any part in the results of static treatment. When we look for some scientific explanation as to how these results are obtained—and we did hope to find something here—we find ourselves no better off than before. We have the same references to "cellular contraction," "protoplasmic contraction," and so on, but no proof of these things taking place under the influence of static electricity, or that the same may not take place under the influence of other forms of electrical stimulation—the faradic current, for instance. Our scepticism remains, even after we are told that the same application will relieve a high arterial tension or restore a low tension to a more normal state.

The book shows evidence of considerable care in its preparation, and will no doubt appeal to those who are interested in the more modern methods of electrical treatment.

Tuberculin in Diagnosis and Treatment. By Louis Hamman, Associate in Medicine in the Johns Hopkins University, and Samuel Wolman, Instructor in Medicine in the Johns Hopkins University. London and New York: D. Appleton and Co. 1912. Pp. 381. Price 12*s.* 6*d.* net.

The authors remark in their preface that the use of tuberculin in diagnosis and treatment has received wide attention during the past decade, and that a voluminous literature has grown up which is widely distributed, a considerable proportion of it being in languages other than English. They have therefore attempted to give a summary of the work done by various physicians, to which they have added the conclusions they have arrived at by their own observations.

The first section of the book is taken up with certain theoretical considerations. In discussing the specificity of the tuberculin reaction, it is shown that the reaction is an index of tuberculous infection, not of tuberculous disease. An individual may be in excellent health and still harbour a tuberculous lesion and display a marked grade of hypersensitiveness to tuberculin. We agree with the authors that an individual is not regarded as tuberculous until there are tangible symptoms referable to the lesion, drawing a distinction between infection and clinical manifestations which constitute disease; thus a reaction to tuberculin, when given subcutaneously, means essentially that the individual reacting has a tuberculous infection, and in itself means nothing more. Reliable observers have proved that from 40 to 60 per cent. of healthy individuals react to tuberculin given subcutaneously, and this result must be remembered in an estimate of the value of the test when dealing with cases suspected clinically of having tuberculous disease. In speaking of the cutaneous tuberculin test, the authors are in harmony with the opinion expressed by the large majority both of clinicians and of workers in the laboratory—namely, that a positive reaction is of considerable value during the first year of life, of less during the second year, of little in childhood, and of none in adult life.

The various methods of administering tuberculin for therapeutic purposes are fully explained and discussed in an open and scientific manner. The opinion is expressed that good results are obtained by the slow method of giving small doses and so avoiding reactions; less risk is thus undertaken. Many charts are reproduced demonstrating the effects of tuberculin. With regard to the results, the authors state that upon a discriminating inspection of the evidence brought to them by the users of tuberculin one deduction is salient: tuberculin is not a "cure" for tuberculosis any more than hygiene, or rest, or diet, or climate, but it constitutes a favourable factor therein. We believe that to be a fair conclusion from all the facts that have been produced. Some physicians are too advanced in optimistic views; others are too pessimistic. The truth lies in an intermediate view, that tuberculin, when cautiously administered, is a good adjunct to other methods of treatment.

This work will serve as a guide to those interested but inexperienced in the use of tuberculin.

Lehrbuch der Physiologie des Menschen. Herausgegeben von N. ZUNTZ und A. LOEWY in Berlin. Mit 289 Abbildungen und 3 Tafeln. Zweite, verbesserte Auflage. Leipzig: F. C. W. Vogel. 1913 Pp. 746. Price, paper, 20 marks; bound, 22 marks.

THERE are one or two examples of medical books in English which have reached a second edition in which the number of pages has been diminished, but it is very rare to find a German text-book in its second edition in which the actual number of the pages of text is diminished, as is the case in the edition before us of this text-book of human physiology by Zuntz and Loewy, where the text-book falls from 737 to 719 pages, and the illustrations from 306 to 289. The diminution in the number of pages has been obtained in a twofold manner. Some illustrations have been withdrawn and a few new ones added. We could have wished that something near the original number of pages had been retained, if only to give space for additional illustrations, which in some of the chapters are much wanted—e g., the reference to Pawlow's pouch, to the sympathetic supply of the lower gut and bladder, to the string galvanometer and the typical records taken by means of it, require diagrams for their elucidation A plate showing the connexions of the sympathetic nerve in the head and neck has been added. Space has also been obtained by condensing some of the original text and printing some parts of it in small type.

Over 16 well-known physiologists are contributors. Most of the chapters, of which there are 23, retain their original form so far as the text is concerned, with here and there excisions, emendations, and additions. We note the addition of a short chapter on electrical fishes, one on the sensations of tickling and itching, and another on common sensation, and, to be up to date, a short account of flight is included by R. du Bois-Reymond, in his article on mechanics of bodily movement. We are glad to find the subject of locomotion again finding its way into our text-books, considering what an important part motion and locomotion and their aberrations play in the diagnosis of certain diseases. We could have wished to see a more artistic and shapely figure than Fig. 146 to illustrate a human being standing, albeit it is called a "model." Owing to the death of Professor Nagel, the chapters on general physiology of the senses and the special physiology of the lower senses—i.e., smell, taste, and the cutaneous senses—originally written by him, have been revised by the competent pen of Professor von Kries, of Freiburg i.B. Otherwise the collaborators are the same as for the first edition.

Professor Exner manages to condense a very large amount of information on the general physiology of the central nervous system into 20 pages. He might with great propriety have expanded the rather short account of the cerebellum. The chapters on the sense organs seem to us to be particularly good. The chapter on the morphology and chemistry of the blood, by Professor Müller, of Düsseldorf, not quite 30 pages, might with advantage have been extended, more especially by the introduction of further details regarding what the author calls the "Schutzstoffe des Blutes." Immunity, precipitins, and anaphylaxy, and such subjects give physiology an "Anhaltspunkt" in relation to pathology. The chapter on lymph, by Professor Spiro, of Strasburg, is none too long. The contributions by Professor Metzner, of Basle, on the skin—changed in its title from excretions to the more general title of functions—and on internal secretions are most commendable. In fact, the chapter on the internal secretions is one of the best condensed systematised accounts of this subject that we know of in any text-book of physiology. To the spleen, however, is given less than a page, which seems to us rather scanty treatment. Professor Zuntz himself gives a masterly account of metabolism, transformation of energy, and animal heat, all of which subjects are closely allied. Professor Cohnheim's account of the urine is sufficient, but we feel sure his account of the mechanism of its secretion would be improved by the introduction of some illustrations in the text It should be noted, however, that for more comprehensive details he refers the reader to the article by R. Magnus in the "Handbuch der Biochemie."

We venture to make these suggestions, not in any captious spirit, but rather with the wish to be helpful in improving a "Lehrbuch" which must take a high place as such even amongst German text-books on human physiology. There is no bibliography in the ordinary sense, though a few standard reference works are named in the preface. It is with much cordiality that we welcome this new edition of a praiseworthy and up-to-date text-book on human physiology, and with some embarrassment that we find ourselves criticising its brevity, when an eternal call upon authors in such compendiums is that they should be brief.

Atlas der Hautkrankheiten. Von Dr. E. JACOBI, A.O. Professor und Direktor der Dermatologischen Universitäts-Klinik, Freiburg. Fifth edition, in two volumes. With 266 illustrations in colour and 2 in black and white. Berlin and Vienna: Urban and Schwarzenberg. 1913. Price, paper, 45 marks; bound, 50 marks.

THESE volumes require no introduction to our readers. Previous editions of Jacobi's dermochromes have been translated into English, and even before that time the beauty and lifelike representations of the illustrations recommended the volumes to the general practitioner as well as to the dermatologist in Britain and America.

The new edition is in many ways an advance upon the last edition which appeared in an English translation, even though the microphotographs of parasitic fungi which appeared in that edition are not reproduced in this latest German edition On the other hand, Professor Jacobi has added a number of new pictures, among which may be mentioned rubeola, miliaria rubra, and gangræna diabetica In his preface he states that some of the old plates had been worn out by frequent reproduction, and these have been replaced by new plates. Certain other pictures have been replaced by entirely new illustrations; for example, small-spored ringworm, kerion, eczema madidans, and lichen planus of the mucous membrane of the mouth. We have compared these with the last English edition, and entirely agree that the new dermochromes give a better representation of the clinical appearances of these diseases.

A few rare diseases have been added. Among these may be mentioned pellagra, oriental boil, sporotrichosis, and granulosis rubra nasi, all of which, as Professor Jacobi states, may be recognised from the pictures. His picture of hydroa vacciniformis gives the impression that the disease is always hæmorrhagic. The illustrations of pityriasis versicolor and chloasma are somewhat too pronounced a shade of brown. The picture of tricophyton annulare affecting the smooth skin is not so good as the majority of the photographs. The second volume contains 82 pictures relating to syphilis, in place of the 35 which appeared in the last English edition in 1910.

We heartily recommend these volumes, with their lifelike representations of diseases of the skin, to all practitioners and students, as certain to be of use in daily work and study.

The Labyrinth: an Aid to the Study of Inflammations of the Internal Ear. By Alfred Braun and Isidore Freisner. With 34 half-tones on 32 plates and 50 figures in the text. London: Rebman, Limited. 1913. Pp. 250. Price 17*s.* 6*d.* net.

The amount of attention which of late years has been bestowed on diseases of the labyrinth, and the enormous extent of the literature on this subject which has been placed before the profession, especially by writers in Austria, Germany, and Russia, have made it of extreme importance that a careful compilation such as has been evolved by Dr. Braun and Dr. Freisner should be put within the reach of English-speaking people.

The work is divided into six chapters, of which the first and second are devoted to a full and thorough consideration of the anatomy and physiology of the part. In the third chapter is carefully set out a compilation of the tests which have been put forward with much care and thought by such men as Bárány, Alexander, von Stein, and others, and it is to this chapter that the reader will direct his chief attention. The fourth chapter is devoted to pathology, the fifth to symptoms of labyrinthitis, and the final chapter to treatment.

The authors have carried out their task in a very satisfactory manner. The book is well illustrated, well printed, and well got up. It may be confidently recommended to aurists with the conviction that they will not regret having placed upon their shelves so important a book of reference.

Travaux de Chirurgie Anatomo-clinique. Par Henri Hartmann, Professeur à la Faculté de Médecine, Chirurgien de l'Hôpital Bichat, &c. Avec la collaboration de B. Cunéo et Paul Lucène, Professeurs Agrégés, Chirurgiens des Hôpitaux; Küss, Prosecteur à la Faculté; Delamare, V. Henry et Lebreton, Anciens Internes des Hôpitaux. Quartrième Série. *Voies Urinaires.* Avec 132 figures. Paris: G. Steinheil. 1913. Pp. 472. Price 16 francs.

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After a short account of the statistics by Professor Hartmann, Dr. Küss gives a valuable description of the normal anatomy of the prostate. Professor Cunéo discusses the anatomical site of prostatic hypertrophy, and he comes to the conclusion that the use of the title prostatic hypertrophy is not justifiable, and that it should be replaced by the name "periurethral adenomyoma," and he considers that the true prostatic substance is stretched out over the adenomatous mass, but it is more than doubtful whether the older name will be replaced. Professor Hartmann and Dr. Küss have written an interesting account of the various methods of removing a hypertrophied prostate. Dr. Küss has contributed a paper on the presence of portions of bone in the bladder, especially sequestra from the pelvis or vertebræ. The last 200 pages are devoted to an account of the operations on the kidney and ureter. In a short chapter Professor Hartmann and Dr. Victor Henry discuss the question of the advisability of operating on the kidney during pregnancy, and show both from theoretical considerations and also from practice that there need be no fear of harm resulting. Two cases are related in neither of which did any harm follow.

From what we have said it is clear that this book contains much of interest to all those who devote special attention to the urinary system.

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The medical man at any time may meet with a case of urgency in which the affection is connected with the urinary organs, and he may wish to know at once what is the best thing to do; and this little book is intended to supply him with the necessary information. It does not concern itself with theories, but it gives full practical details of what should be done. Of course, opinions may differ as to what are emergencies, but on the whole it is better to include too much rather than too little. For instance, no one can deny that in such a work an account should be given of the treatment of retention of urine or ruptured urethra, but it is not equally certain that a description of prostatectomy is required, though some surgeons are of opinion that in certain acute cases a prostatectomy is better than suprapubic drainage. In each case of emergency the authors have described the method which they consider the best, and have not even referred to the other possible methods. In this we think they have acted wisely, for it is very much better for the medical man to have a clear course laid down for him than to have to choose between several different methods of treatment. The book is well written and fully illustrated.

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The book maintains its main characteristics, but the page has been enlarged so as to enable better illustrations to be included. Dr. Jellett's teaching is eminently sound and practical, and this "Short Practice of Midwifery" can be safely recommended to students and practitioners.

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THE two volumes now before us are the third and fourth of the complete work. They deal with the development in various countries of the science of trained nursing, with special reference to the work of the past 30 years. Vol. III. includes nursing in our own country, in the United States, in Northern Europe, and in France; Vol. IV. deals with Germany, Switzerland, the Low Countries, Italy, Spain, the Nearer and the Further East, Australasia, and Canada.

Miss Dock's labours as editor have certainly been crowned with success, for the work is a most interesting record of the progress, not so much of the science of nursing as in the organisation and provision of trained nursing. This appears not only in hospitals, but in what may be called the social side of nursing—e.g., in our own country the Queen's Jubilee nurses, district nurses, and nurses attached to elementary public schools. Those of our readers who may have studied the life of the late J. M. Neale will remember the appalling state of things which existed some 50 years ago in the remoter parts of Sussex, and the difficulties against which the newly founded sisters of East Grinstead had to battle in combating outbreaks of typhus fever among the poor. Such a state of matters is inconceivable to-day. Miss Dock is a warm believer in the State registration of nurses, an end which has been more nearly reached in the United States than amongst ourselves. One of the most interesting sections in the work is that which deals with France, and amongst other matters with the work of that able woman, Dr. Anna Hamilton, at Bordeaux.

The section on Germany is mainly an account of the development of the organisation of the Free Sisters—i.e., an association of nurses not connected with any religious or charitable body—and their virtual founder, Sister Agnes Karll. In Italy the pioneers of the new nursing movement were Signora Anna Celli, Miss Amy Turton, and Miss Grace Baxter, ladies who, warmly seconded by (amongst others) Professor Celli and the Princess Doria, brought about a revolution in Italian nursing. Other sections of Miss Dock's book deal with India, Cuba, and the Philippines, in the latter two of which countries the Americans have done such good work. Japan also received her early training in nursing from Americans. Miss Dock's book should be for some time at least a standing work of reference on her subject. This being so, we must note that her statement on p. 3 that the first statute in connexion with the Poor-law in England was passed in 1601 is not correct. Between 1541 and 1601 there were passed 12 Acts dealing with Poor-law relief, and the Act of 1601, which remained substantially the law for the relief of the poor until 1835, was mainly a consolidation of previous Acts.

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What Heart Patients Should Know and Do. By JAMES HENRY HONAN, M.D., Bad Nauheim. New York: Dodd, Mead, and Company. 1913. Pp. 204. Price $1.20 net.—The purpose of this book is stated by the author to be to give encouragement and hope to those who know they have heart trouble; to lead those who are unconscious that they have heart trouble to ascertain their deficiency or weakness without arousing their undue anxiety; to help both to make the most of their lives by avoiding those things which so often lead to the needless and tragic sacrifice of men and women; and to warn the well from doing those things which cause heart, blood-vessel, and kidney diseases. The author has much to say that is sensible and practical in regard to disease prevention, to bodily and mental relaxation, clothing, climate, exercise, diet, bathing, as well as to obesity and the various forms of cardiac and vascular trouble. The general note of the book is one of "sweet reasonableness," though in the chapter on diet we meet with some exaggerated statements as regards the ill-effects of coffee and tea, and in his comments on the use of alcoholic beverages the author seems to assume that all persons who use them must drink either spirits, beer, ale or stout, for he makes no mention of wines. He is not an extremist, however. He recognises that dietetics is not an exact science, and says that "laboratory tests and methods of food values, digestibility, &c., while valuable supplemental guides, will never become substitutes for clinical and personal experience." The book is likely to prove useful.

Dental Anæsthetics. By WILFRED E. ALDERSON, M.D. Second edition. Bristol: John Wright and Sons, Limited. Pp. 187. Price 3*s.* net.—Dr. Alderson's little book has
deservedly entered upon a second edition. nd
clear, and well adapted to the
dentistry, as might be expected, seeing
lectures which he has been in the habit
Newcastle Dental Hospital and S
throughout are sound and clearly
we would recommend to readers
says against the employment of
With his account and criticism
not quite so fully in agreement.
administration and the
less than those involved
results, we are
upon. In speaking of
air or oxygen, the author
reapplication after complete
advantage have pointed
made before any ret
only not injuriou

extractions as long as those for which nasal administration is sometimes employed. The latter is less certain of success. As contraindications to the use of nitrous oxide, Ludwig's angina and allied conditions, apt to be associated with œdema of the glottis, might well be added to those given on p. 44. Similarly on p. 43, simple engorgement from congestion is a common cause which should find mention. In so small a book it is easy, of course, to find omissions. Dr. Alderson has few of any importance, and we wish the little work continued success.

Technik der ärztlichen Massage für praktische Aerzte. Von Dr. ANTON BUM, Privatdozent an der Wiener Universität. Illustrated. Berlin: Urban und Schwarzenberg. 1913. Pp. 112. Price 3.40 marks.—This little book is a practical guide to the performance of massage. It deals first with the physiological effect of each class of movement and then gives a description of its application to the several parts of the body, showing in illustrations exactly how the hands should be laid upon the patient, and indicating by arrows the direction in which the movements should be carried out. Chapter IV. deals in detail with regional massage, the face, the head and neck, the chest, the abdomen, and so forth, and Chapter V. with massage of the internal organs. The illustrations are clear and well executed, and are a great help to the comprehension of the descriptions.

MISCELLANEOUS VOLUMES.

SEVERAL little books for Territorial medical officers and officers of the ancillary organisations may be fitly considered together.

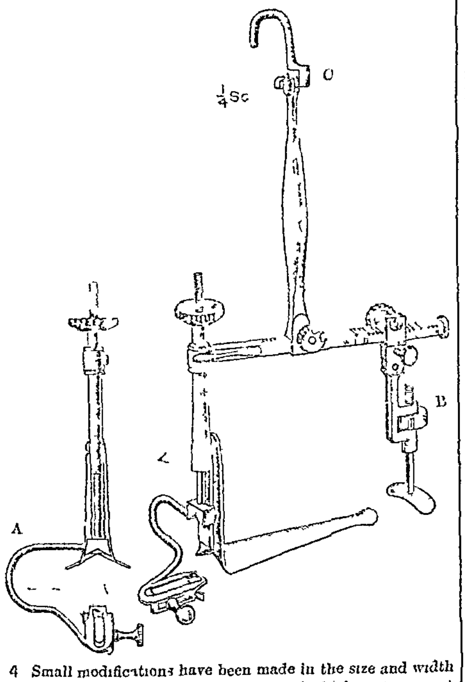
In *Voluntary Aid Detachments in Campaign* (London: Baillière, Tindall, and Cox. 1913. Pp. 77. Price 1*s.* 6*d.* net) Captain C. R. SYLVESTER BRADLEY, R.A.M.C., publishes a series of lectures dealing with the collection and disposal of casualties by the Territorial medical services and the Voluntary Aid Detachments. The lectures were originally delivered by him to non-commissioned officers and officers of those bodies respectively. This is not a manual of instruction in the duties of the rank and file, but a description of the organisation and administration of the work as a whole. Captain Bradley first enumerates the three zones that have to be dealt with by the Medical Service of the expeditionary force in a foreign country—viz., the collecting zone, the evacuating zone, and the distributing zone. He then points out that, in the event of mobilisation for home defence, the evacuating zone would have to be worked by voluntary aid. The units involved in this work are the clearing hospitals and rest stations, stationary hospitals, ambulance trains, medical store depôts, and convalescent depôts, for which the Territorial division of the Royal Army Medical Corps is not equipped. Captain Bradley therefore explains the organisation of these units in the expeditionary force, and indicates how voluntary aid may be best utilised to fill the gap in the Territorial chain of military medical assistance. He describes the duties of the *personnel*, the medical and surgical equipment recommended for voluntary aid hospitals on mobilisation, gives some hints for peace training, and concludes with conciuts from the *Geneva* Convention. There is one verbal not justiwe would make. It seems scarcely accurate to say "periurethn to war to kill many of the enemy as possible." prostatic substiect nowadays is simply to render them mass, but it is moing purposes. True, that involves much will be replaced. [illegible] a means, not the object. written an interesting accounrealises this, but the expres removing a hypertrophied prostate. nism on the part of a paper on the presence of portions orage in the humaner especially sequestra from the pelvis or very useful one.—— 200 pages are devoted to an account of

Field Service Notes for R.A.M.C. (London: John Bale, Sons, and Danielsson, Limited. 1913. Pp. 94. Price 2*s.* 6*d.* net), by Major T. H. GOODWIN, R.A.M.C., will prove of service to junior Royal Army Medical Corps officers, and as a reference pocket book will be of value to all officers. It contains the details of war establishments of the army and of medical establishments, in the latter case both of *personnel* and material. Its diagrams show the plotting out of dressing stations, tent subdivision encampments, operating tents, and the packing of store wagons. There is information concerning signals, army forms and books, and loads, the details of the various hospitals, evacuation averages, the staff, sanitary organisation of field units, supply service in the field, railway transport, billeting, horse management, map reading, and mobilisation. The book consists essentially of notes and formulæ—"constants." For officers of the Territorial Forces and the Voluntary Aid Detachments it will, in a sense, be complementary to Captain Bradley's book, which presents, as it were, the gross anatomy of the military medical organism, while Major Goodwin's book fills in the picture down to the smallest histological detail. A study of the two books, first mastering Captain Bradley's broad outline, then the detail, section by section and under practical instruction, as presented by Major Goodwin, should make a highly efficient Territorial and Voluntary Aid Detachment officer.——A useful little book on the same subject is *Field Sanitation for Territorial Officers* (London: Gale and Polden. 1913. Pp. 34. Price 1*s.* net), by Lieutenant-Colonel C. AVERILL, V.D., M.D., D.P.H. It supplies in concise form the most important points of detail in the field sanitary organisation for the Territorial Force. It is also a useful *aide mémoire* for the officer commencing the study of the subject. It will be of service both to medical and combatant officers, not only as affording a general view of the matters that need attention, but as refreshing their memories from time to time. On occasions when an officer's *impedimenta* are strictly limited it may suffice for practical requirements, though as a general rule it is well to be in possession of the official regulations and instructions, of which this is a summary.——We have before us of the same class still another excellent little book for those for whom it is intended in *Hints for Regimental Medical Officers of the Territorial Force* (London: Forster, Groom and Co., Limited. 1913. Pp. 39. Price 1*s.* 6*d.*), by Captain M. F. GRANT, R.A.M.C. Captain Grant's remarks on the importance of the regimental medical officer getting busy on the work of the annual training a month or more before the date fixed for camp are cogent, and this vest-pocket book will guide the inexperienced in the matter. The instruction given as to duties is very comprehensive.—— In this connexion may also be mentioned the *Skizzen eines Feldarztes aus Montenegro* of Dr. HERMANN VON SCHROTTER (Berlin und Wien: Urban and Schwarzenberg. 1913. Pp. 88. Price 3 marks). This interesting brochure of 80 odd pages, profusely illustrated, contains much valuable information as regards the working of the Red Cross in Montenegro during the recent war, and shows well how much has yet to be done, especially in the East, in bringing this work to a greater state of efficiency. Ingenuity has yet to provide more efficient means of transporting wounded in mountainous districts and across stone-strewn localities. It was the same in Turkey, where ordinary carriages were used for bringing wounded from the railway station up the hilly, ill-paved streets to the several hospitals, and the amount of suffering entailed was immense. The improvisation of material for wounded persons is a subject upon which too great attention cannot be bestowed, and a very interesting double inclined plane used for fractures is illustrated on page 62. This paper fully bears out the great wrong that results from sending un uniformed reservists to the front It ought never to be allowed, for when falling captive into the hands of the enemy they are immediately shot down, as they cannot be distinguished from armed peasants Every war that occurs teaches us something new as regards military surgery As long as armaments and warfare generally alter in character, so long will the injuries arising therefrom alter also, as well as the modes of best dealing with them Epidemics of typhoid, cholera, and dysentery will frequently occur, and how best to combat and prevent these may be the problems present of any campaign, but military surgery must inevitably alter, and it is absolutely necessary for the military surgeon, whatever the terms of his employment to keep abreast of the times

New Inventions.

HOOK SPATULA FOR SUSPENSION LARYNGOSCOPY

THIS instrument is a modified form of Killian's The following are the main advantages in the present apparatus 1 The opening A is twice as wide, being 2 in as against 1 in , the wider view obtained is especially useful in operations in the deep pharynx and upper aperture of the larynx 2 The counter pressor B runs on an arm and is adjustable , this has proved of great advantage in the presentation of the anterior commissure 3 A swivel joint has been inserted at C



4 Small modifications have been made in the size and width of the spatula and in the adjustment which rests against the teeth

Messrs Down Brothers, 21 and 23 St Thomas s street, London S E , are the makers

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ROYAL COLLEGE OF SURGEONS OF ENGLAND

MEETING OF COUNCIL

A QUARTERLY meeting of the Council was held on July 10th Sir RICKMAN GODLEE the President, being in the chair

The PRESIDENT reported the result of the election of four members of Council as already recorded in THE LANCET, and he stated that Mr L A Dunn being third on the poll became substitute member of Council for the late Mr C T Dent until 1919, and that Mr Hutchinson being fourth on the poll became substitute member of Council for Mr Bruce Clarke until 1915

Mr Lane, Mr Dunn Mr Hutchinson, and Mr Waring were introduced, made declarations in the terms of the oath prescribed by the Charter of 1800, and took their seats in the Council

The SECRETARY reported the death on June 23rd, at the age of 85 of Sir Jonathan Hutchinson LL D , F R S , past President and past member of the Council and Court of Examiners *The following resolution was passed* —

[illegible]

record their appreciation of his untiring industry the extent and accuracy of his observations his eminence in many of the special departments of surgery and the important discoveries which will

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The SECRETARY reported the death on June 30th, at the age of 76 of Mr Alfred Willett past Vice President and past member of the Council The following resolution was passed —

That the Council hereby express their deep regret at the death of Mr Alfred Willett and tender their sincere sympathy to Mrs Willett and the other members of the family in their bereavement

That the Council do also record their appreciation of the many services rendered by Mr Willett to the College in the conscientious discharge of the duties which devolved upon him as a Vice President and member of the Council

The Council have not forgotten the respect and affection which his sterling character and genial presence inspired

On the recommendation of the Museum Committee it was resolved to purchase two sets of casts of the fragments of the human skull found at Piltsdown Sussex and a model of the reconstructed skull and a cast from the brain cavity It was also resolved that a revised edition of the Museum Guide with additional illustrations should be printed, and that the price of the guide should be 1*s* a copy

It was resolved to appoint Mr E Hugh N Wilde the solicitor to the College in succession to Mr Ernest J Wilde who had held the post for many years The Council elected Mr W G Spencer a member of the Board of Examiners in Dental Surgery

The PRESIDENT stated that the vacancy of an Examiner in Physiology for the Fellowship occasioned by the resignation of Professor Francis Gotch would be filled at the next meeting of the Council Sir Frederic Eve was elected, and Sir Alfred Pearce Gould and Mr R Clement Lucas were re elected members of the Executive Committee of the Imperial Cancer Research Fund

Mr R Clement Lucas was appointed a representative of the College on the Council of the Queen Victoria s Jubilee Institute for Nurses

The following appointments were made —Hunterian Professors Arthur Keith (six lectures), Hastings Gilford (two lectures) Charles Mansell Moullin (one lecture) Ernest William Hey Groves (one lecture) Arthur Rendle Short (one lecture) and Harold Beckwith Whitehouse (one lecture) Arris and Gale Lecturers Frederic Wood Jones (two lectures), and David Waterston (one lecture) Erasmus Wilson Lecturer Samuel George Shattock Arnott Demonstrator Arthur Keith Odontological Demonstrator James Frank Colyer

Sir Rickman Godlee was re elected President, and Mr G H Makins and Sir Frederic Eve were elected Vice Presidents for the ensuing year

THE LANCET.

LONDON: SATURDAY, JULY 19, 1913.

The Friendly Societies and the Growth of Malingering.

Mr. A. H. WARREN, President of the National Conference of Friendly Societies, has issued a memorandum upon the working of the National Insurance Act which contains a plea for the amendment of Clause 15, the clause which commits the administration of medical benefit to the Local Insurance Committees. Mr. WARREN'S action arises out of the growth of malingering which the present methods of administering the medical benefits are alleged to favour. It is unnecessary to say that the amendment which Mr. WARREN especially desires is the transference of the administration of medical benefit from the Local Insurance Committees to the Approved Societies, and it cannot be too clearly stated that, whatever fault Mr. WARREN may find with the Act, and whatever suggestions for amendments of those faults he may put forward, one of the best features of the measure is the release of medical men engaged in contract practice from the tyranny of Friendly Societies and medical aid associations. The very large insured public can now exercise a real choice in the matter of their medical attendant, and Mr. WARREN is wasting his time in attempting to regain for medical clubs their former position as employers of the doctor. Not only did that system largely deprive the members of the clubs from obtaining any medical advice save from a particular medical man, but the plight of the medical man under the domination of lay authorities was in many respects unfortunate. The medical profession will not go back to the old way.

The plea put forward by Mr. WARREN for the restoration to the Friendly Societies of the right to administer medical benefit—a right which he states was actually promised by the Chancellor of the Exchequer—is founded upon the fact that the claims in respect of sickness made during the first six months of 1913 have been so enormous that absolute financial ruin, in his opinion, will overtake the Friendly Society movement unless some drastic steps are taken to alter the present condition of things. Having regard to the good work done by Friendly Societies in many directions, we regret to learn that their financial plight is so parlous, but to restore to these associations their old predominance over medical practice would now be absolutely impossible. For many years a large section of the medical men who were employed by the medical aid associations were not well treated; they were in numerous instances placed in a ridiculous position of subserviency, and were ill-paid, while deliberate attempts were made in some of the localities where they resisted such treatment to import medical practitioners to assist in the coercion of their professional colleagues. These things have not been forgotten. It is not with any pleasure that we re-tell this old story, but it will have to be told whenever there is any suggestion of reviving by Act of Parliament a condition of things which was as unfortunate for the public as for the practitioner. Medical men are not entirely satisfied with the constitution of the Local Medical Committees set in authority over them, but they recognise the difference between the jurisdiction of these bodies and service under the secretaries and officers of clubs. We do not understand in what way such an unfortunate step backwards as the Friendly Societies desire would lead to a lessening of malingering. Of course the suggestion is that a large proportion of the money required for sickness benefits is now being spent upon imaginary disease or upon its wilful imitation, inasmuch as medical men, freed from the wholesome guidance of the medical clubs, are unable or unwilling to cope with the evil. To begin with, the real cause of all the increased claims upon medical benefit is not the deliberate malingering of the insured. We do not for a moment say that this unsocial and dishonest offence is not occurring, but it is only one of the factors that have led to the financial insecurity of Friendly Societies, and if these bodies had the administration of medical benefits in their own hands the main difficulties would still exist. The inclusion among the insured of masses of persons who before the Act belonged to no society or medical aid association simply because no organisation of the kind would accept the risk of providing unhealthy subjects with medical benefits for the inclusive fee of a few shillings a year, is mainly responsible for the increased expenditure, while the systematic examination of a large proportion of the population has revealed an unexpected amount of sickness. The old members of a good many Approved Societies were to a large extent picked lives, and it stands to reason that a much smaller demand was made by them on the funds of their clubs than is now made. Old members, again, of a medical aid association were an exposition of voluntary coöperative thrift, while the present members are a more or less accidental aggregation of compulsorily insured persons, and undoubtedly a great difference of attitude must be produced by this difference of circumstance. To trespass unduly upon the common funds would have seemed in times past an indelicate action to many of those whose avowed intention it now is to get as much as possible out of National Insurance. The medical aid associations and Friendly Societies can recover neither their previous constitution nor their ancient spirit, and could not act more effectively to reduce the claims of sickness if the vast responsibity for which they plead were placed upon them.

Mr. CHARLES E. S. FLEMMING, dealing with the question of malingering in connexion with the National Insurance Act, has written an interesting letter to the *Times* suggesting the appointment of medical referees to meet the difficulties. He points out that malingering and uninhibited valetudinarianism are becoming very common, and we agree with him in attributing a part of their prevalence to-day to the *Employers' Liability Act*. This Act has decidedly in its present state of working done much to increase a simulation of sickness and disease. Mr. FLEMMING considers that the only satisfactory remedy will be the appointment of medical referees upon a satisfactory scheme worked out to their mutual benefit between Approved Societies and medical men. There is a great deal to be said for this suggestion, and something of the sort may have to be done if the present state of things continues, though how exactly it would be possible to make satisfactory use of medical referees does not appear very clear to us. It is our belief that the demand on medical service will not continue to be so severe.

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The Amalgamation of St. George's and the Westminster Hospitals.

AT a meeting of the governors of St. George's Hospital held in the board room on July 10th, under the presidency of Mr. A. WILLIAM WEST, treasurer of the hospital, resolutions expressing the desirability of amalgamating with Westminster Hospital were discussed and adopted. In opening the proceedings the chairman stated that an offer had been received to purchase the land upon which the hospital now stands for £460,000, subject to a satisfactory arrangement with the DUKE of WESTMINSTER for his right of pre-emption over a certain portion of the site. The joint subcommittee of St. George's and the Westminster Hospitals are unanimously of opinion that the amalgamation and removal of the two hospitals to another site are desirable. The subcommittee are also of opinion, we learn, that of two sites which they have in mind—one at Clapham Common and another near Wandsworth Bridge—the balance of advantage is in favour of the latter site, but no doubt the merits of one or the other locality will be publicly stated in due time. The great argument in favour of removal of St. George's Hospital from Hyde Park Corner is that the charity is no longer in touch with the poor, whereas by removal to what not so long ago were regarded as suburban districts the institution could be brought within a stone's throw of the district from which most of the patients come. With regard to the financial side of the scheme, Mr. WEST said that should the sale of the sites of the two hospitals take place, the invested funds and property of the two institutions would, leaving on one side any reversionary interests, after purchasing a new site of about eight acres and building a new hospital with 500 beds, produce for them an endowment fund of between £850,000 and £900,000. It is proposed not to entirely desert the old district, but to establish for first-aid treatment a centre to which any accident cases in that neighbourhood can be taken and from which they can be removed to the new hospital.

The resolutions at the meeting expressed the views that amalgamation was desirable, and that a contract for the sale of the site should be entered into, and stipulated that the governors of the two hospitals should become governors of an amalgamated institution, and that the consultant and honorary staffs of the two hospitals should retain their positions. There is something dramatic in the fact that after a lapse of 180 years St. George's Hospital and the Westminster Hospital should come together again, for, as may or may not be generally known, St. George's Hospital was an offshoot of the Westminster Infirmary founded in 1715 under the title of the Westminster Charitable Society. This institution had its headquarters, after one or two changes of address, in Chapel-street, Westminster, but in 1733, finding the premises too small, a minority of the medical staff seceded, migrated north, and took possession of Lanesborough House, which then stood surrounded by meadows very nearly on the site of the present building. The choice of site is said to have been determined by the healthiness of the position, for Knightsbridge, we are told, was famous as a locality "where is good air for cure of consumptions, melancholy, and other infirmities," and this fame is perpetuated by the title of the road from Hyde Park Corner to Buckingham Palace, which is Constitution Hill. The venture was successful from the beginning, the seal of scientific success being put upon it by the presence on the hospital staff of JOHN HUNTER, MATHEW BAILLIE, and EVERARD HOME, while EDWARD JENNER was among JOHN HUNTER'S most famous pupils. WILLIAM CHESELDEN appears to have been a link between the separated medical schools, as both claim him upon their staffs, the other famous Westminster men at the time of the rupture being the great RICHARD MEAD in a consulting capacity and BENJAMIN HOADLEY.

It is not at all surprising that there should be a general feeling of regret expressed at the rupture of associations implied in transferring the Westminster Hospital from its magnificent situation opposite the national Abbey and St. George's Hospital from its historic position by the toll-bars of Hyde Park Corner. At the latter institution the wisdom of moving from an unsuitable district and of utilising the enormous money value of the site has long been talked about, but obvious as the economical advantages of the scheme were seen to be, financial difficulties as well as deep sentiments have been against the change. At last the advisability of the drastic steps now taken by both charities became generally apparent, for of late two things have become concurrently obvious to all. The first is that the poor, in the midst of whom or in immediate contact with whom a general hospital, should have its place, have largely disappeared from the immediate area of St. George's Hospital, while the neighbourhood of the Westminster Hospital is seen to be fully served by other institutions. Hospitals cannot live by ministering to highly paid domestic servants whose needs are to a great extent catered for by the National Insurance Act. The second is that the increase in the facilities for travelling in London makes distance from the residential quarters of the honorary staffs a less serious matter than formerly. There is no doubt that the honorary staffs will be asked to put up with a great deal of inconvenience by having their arduous duties to perform at Clapham or Wandsworth instead of at Westminster or Hyde Park Corner, but it will be recognised that this is a difficulty which has no longer the force that it had 25 or even five years ago.

Annotations.

"Ne quid nimis."

THE PETROL HAZE OF THE STREETS.

Attention may be drawn to the increasing murkiness of the atmosphere of the streets arising from the incomplete burning of the petrol in the motor engine. As most of the vehicles in the metropolis are now propelled by motor, the nuisance is rapidly increasing, and it will do so until the facilities of combustion in the motor engine are improved. In stagnant conditions of weather, as on a fine sunny day or during a windless drizzle of rain, quite a haze of petrol fumes accumulates, which is very unpleasant to the pedestrian. Such an atmosphere is, of course, inimical to healthy conditions. Unburnt petrol or partially burnt oil is frequently present in notable quantity, which is not favourable to healthy respiration, and a suspicion has been entertained that the presence of so much oil in the air disturbs the protective qualities of paint. Modern traffic has, in fact, introduced a totally new condition of things in regard to the state of the air in the streets, and it will not be surprising if in the long run mischief in more than one direction comes to be traced to the acrid fumes which are accompanying the motor traffic. We anticipated some years ago that the contamination of the streets would pass from a purely physiological kind to one of a chemical nature as we discontinued horse traffic in favour of motor traffic. That has practically come to pass. We have to deal now with the products of the imperfect combustion of a hydrocarbon, whereas formerly the offences of street traffic arose mainly out of animal products. To an extent this latter pollution was dealt with satisfactorily by our sanitary authorities, but little success appears to have attended any attempt to suppress the production of motor fumes. It is, at all events, common enough to see motor vehicles discharging into the streets from their exhaust tube a succession of rapid puffs of smoke with an evil smell. In the case of modern motor traffic the remedy lies in prevention by the perfection of the machine, or in the retention of a driver qualified to control the working of his combustion engine. In the case of horse traffic the evil could not be prevented, but the best measures were taken to minimise it. From a chemical point of view it would not be surprising if analyses of the air of London streets came to show in terms of carbonic acid gas, hydrocarbons, and probably carbon monoxide, a much worse state of affairs than existed when the horse was exclusively used for vehicular traffic. Improvements have, however, manifestly been made during the past few years in the engines of the motor-car, and we may hope that soon they will be rendered practically fumeless, which will imply a more economical use of fuel in addition to the suppression of an obvious nuisance.

ARSENIC CANCER.

The interesting case recently recorded by Mr. R. J Pye-Smith and the discussion that followed at the Clinical Section of the Royal Society of Medicine call attention to a risk which is perhaps hardly appreciated sufficiently in medical practice—namely, the possibility that serious mischief may follow the prolonged use of arsenic in the treatment of chronic affections of the skin. Psoriasis is the disease for which such a use of the remedy is most often made, and it is in those who have suffered from this malady that epitheliomatous developments have most frequently been recorded. The first observer to direct attention to the sequence was the late Sir Jonathan Hutchinson, and some 30 cases are now on record. In Mr. Pye-Smith's case the patient was a woman, aged 29, who had been treated for psoriasis from the age of 7 to 14. No ill-effects were apparently observed until eight years later, when a condition of hyperkeratosis developed, with warty growths scattered over the skin. The first appearance of epithelioma was on the finger where the patient constantly wore her wedding ring, this possibly acting as a local irritant. Later on, malignant ulcers developed on the neighbouring finger, on the pubes, and on the labia minora, this appearance of multiple growths being characteristic of the arsenical affection. In spite of operative removal death occurred, apparently from internal metastatic growths, about two years after the woman first came under medical treatment. The exact method of causation of the form of cancer associated with arsenic is not certain. A direct influence as a stimulant to epithelial growth is possible, the element acting as what Mr. H. C. Ross has termed an auxetic or producer of cell-division. More probably the process is indirect, the poison first tending to cause degeneration of the cells of the skin, and the products of their destruction constituting the stimulus to undue proliferation of epithelium. The clinical sequence would seem to be, first, hyperkeratosis or heaping up of the horny layer of the skin, then formation of fissures in the diseased epidermis, with subsequent invasion of these by parasitic bacteria. Ulcers are then formed, in the edges of which epithelioma develops. The use of arsenic for psoriasis is probably less general in these days than it was some years ago, but even now it is not uncommonly used for this affection and also for chorea over somewhat prolonged periods. New arsenical compounds have also been introduced, such as salvarsan and atoxyl, which may not be free from danger, though they are usually given in comparatively short courses. It is therefore well to bear in mind the possible ill-effects of arsenic and carefully to watch for the appearance of any signs of thickening of the skin, which should lead to immediate suspension of the drug. It is noteworthy that in Mr. Pye-Smith's case the onset of the skin affection was only noted many years after the treatment had been discontinued, a somewhat disquieting circumstance suggesting that even such a warning may come too late, and that the safer rule would be to avoid altogether the prolonged use of arsenic.

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

At the recent election of officers and council of the Society of Tropical Medicine and Hygiene Sir R. Havelock Charles was elected president for the next two years, and Dr. F. M. Sandwith vice-president. The Society has been in negotiation with the Royal Society of Medicine with reference to the suggestion that it should become the Tropical Section of the latter body. We are now informed that the council of the Society of Tropical Medicine and Hygiene, after giving careful consideration to the matter, are of opinion that for many reasons it is desirable that the Society should retain its independence. A memorandum carefully explaining the facts of the case will be sent to all Fellows of the Society of Tropical Medicine and Hygiene, who will be asked to record their votes "For" or "Against" amalgamation, and the result will not be declared until after Nov. 1st, the latest date for votes to be received. It has been decided that no change shall be made unless there is a three-fourths majority of the Fellows who take part in the ballot. The Society of Tropical Medicine and Hygiene has only been in existence six years, and we understand that it has on its books over 600 Fellows, so that it can justify a separate existence from the point of view of numerical strength The question which has to be decided is whether, as an integral part of the Royal Society of Medicine, its work would not gain in breadth

THE TREATMENT OF TUBERCULOSIS ON FRIEDMANN'S PLAN

BEFORE a recent meeting of the Berlin Medical Society Dr Westenhöfer, pathologist to the Moabit Hospital in Berlin, showed specimens derived from a case of tuberculosis which had been treated by Dr Friedmann, whose claims have been several times alluded to in these columns The subject of the post mortem investigation was an American medical man who had a severe hæmorrhage in the street and was conveyed in a moribund state to the hospital According to the report of the companion of the deceased, who was a medical man also, the patient had had an intragluteal injection of Dr Friedmann's serum three weeks ago and felt comparatively well The necropsy showed a number of cavities, of which one enclosed an aneurysm of the pulmonary artery, which had burst and so produced hæmoptysis There were numerous miliary tubercles and disseminated foci of connective tissue, and certain symptoms of healing were present together with progress of the tuberculous mischief An incision into the place of the injection in the gluteal region showed marked tuberculosis There were tubercles, giant cells, and bacilli, which were shorter and thicker than human tubercle bacilli The question is whether the tuberculosis at the place of the injection must be regarded as a direct sequel to the injection or only as a symptom of the general tuberculosis Primary tuberculosis of the muscles is extremely rare, and it is significant that tuberculosis should have developed at a spot where an alleged antituberculous remedy had been deposited, especially when we remember that in a guinea pig where the injection had been performed by Dr Friedmann himself tuberculous manifestations had appeared at the point of the injection Arising out of this discussion of the case a motion was brought forward to have Dr Friedmann's "cure" examined into by a special commission of the Berlin Medical Society, but the proposal failed to find support

THE WEIGHT OF INFANTS AT BIRTH

Dr H J Hansen, of Nykobing on Sealand by means of an investigation which was carried on in the district in which he practises has been able to collect some valuable statistics with respect to the weight of newly born infants He enlisted the services of a number of midwives in his neighbourhood and supplied them with forms which they were requested to fill in with appropriate figures The investigations were continued for ten years (1900–1910) and the report[1] now published refers to the weight of 5979 babies The general results, as far as rural cases are concerned, show that the average weight of male infants was 3696 grm , while that of female infants was 3542 grm , the weights in both cases being between 8 and 9 per cent higher than in town babies The author refers to the various factors which may be considered to have an influence on the weight The age of the mother appears to exercise a definite influence, speaking generally, the older the mother the greater the weight of the infant at birth But this law is modified by the number of previous pregnancies, for the larger the number of previous pregnancies the greater the weight of the infant and this latter factor altogether preponderates over that of age The age of the mother at the time of the first pregnancy is another matter with which the author deals It seems that the age group 30–34 years is the optimum period for the beginning of child bearing as judged by the criterion of the weight of the first five or six children In the case of this age group there is a definite decline in weight after five or six children have been born The economic conditions obtaining in the home also influence the birth weight, making certain corrections for the age of the mother and the number of previous pregnancies the figures show that the children of the well to do classes are considerably heavier than those of the extremely poor But this rule does not hold good after six children have been born Making allowance for the three factors with regard to which the author made special inquiry—namely, the age of the mother, the number of previous children, and the economic conditions—the conclusion that illegitimate children are on the whole of less weight than legitimate children may be deduced from the statistics It further appears that seasonal conditions are factors in the question, on an average babies born in the autumn are heavier than those born in the spring In an appendix the author considers the relative numbers of males and females and the factors which determine these differences Among other things he finds that the younger the mothers are on beginning child bearing the greater is the proportion of boys

UNILATERAL LARYNGEAL PARALYSIS

READERS of the discussion at the Laryngological Section of the Royal Society of Medicine, which is published in the last volume of the "Proceedings," will probably be surprised at the lengthy list of affections which may give rise to paralysis of one vocal cord Roughly grouped, they embrace bulbar lesions, neuritis of the vagus or recurrent laryngeal nerve, pressure from tumours either situated in the thorax, the neck, or the skull traumatism including surgical operations and a miscellaneous group of conditions including pericarditis, pleurisy, and tuberculosis of the lungs and cardiac disease with dilatation of the left auricle Statistics collected by different observers agree fairly closely as to the comparative frequency of the various causes most often encountered Paralysis of the left cord is due in the largest group of cases to aneurysm of the aorta other common causes being malignant disease of the œsophagus or lung, affections of bronchial glands, and spinal diseases, such as tabes dorsalis, disseminated sclerosis, and so forth On the right side malignant disease of the œsophagus seems to be the most important cause of laryngeal paralysis, spinal diseases probably ranking next in frequency The left cord is paralysed much more frequently than the right, doubtless owing to the anatomical relations of the recurrent laryngeal nerve on this side, which winds round the arch of the aorta and comes into intimate relations with the bronchial and mediastinal glands as well as with the vessel A group of cases of obscure origin is put down to the vague explanation of toxæmia, a certain number of instances occurring in which recovery takes place and no definite cause can be ascertained They may perhaps be compared with cases of facial paralysis in which a rheumatic origin is often assumed, the term being little more than a convenient cloak for ignorance The reality of the association of laryngeal paralysis with dilatation of the left auricle of the heart, as in cases of mitral stenosis, seems to be admitted by laryngologists, and cases were quoted at the meeting in *which this mode* of causation was probable The possibility of glandular enlargement in such instances must be borne in mind, and in one of the recorded cases X ray examination showed opacity in the posterior mediastinum A similar alternative is obviously to be considered in cases which are attributed to tubercular disease and accompanying pleurisy at the apex of the lung The recurrent laryngeal nerve does not lie in very close relation to the pleura, though some extension of inflammation might occur to the mediastinal contents; but enlargement of bronchial glands is almost always present in these conditions, and pressure on the nerve or involvement of its sheath might easily occur. An interesting suggestion was made by Sir David Ferrier that the frequency of abductor paralysis rather than affection of adduction in cases of organic disease was comparable with the liability of the extensor muscles to suffer more than the flexors in peripheral paralysis, but the analogy was not acceptable to Sir Felix Semon, who also doubted the peripheral origin of affections of the nerve in tabetic patients.

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[1] Investigations in the Weight of New born Children by H J Hansen, published by the Anthropological Society of Copenhagen 1913

THROMBOSIS OF THE ABDOMINAL AORTA.

AT a meeting of the Société Médicale des Hôpitaux of Paris on May 23rd M. A. Clerc and M. G. Clarac reported a case of a very rare, though well-recognised condition—thrombosis of the abdominal aorta. The patient, a woman aged 65 years, was admitted into hospital on April 2nd, 1913. Since March 30th she had suffered from painful and complete paraplegia. On examination the whole right lower limb was cyanosed except the internal part of the foot and the first three toes, which were livid. On the posterior surface of the thigh was a bedsore of the size of a two-franc piece. The left lower limb was similarly affected, but the arrest of the circulation had not extended beyond the lower third of the thigh. The cyanosed skin was as cold as that of a corpse. Arterial pulsation was absent on both sides even above the crural rings. The patient complained of acute pain in the legs, especially in the right, which was increased by attempts to move them. On the other hand, there was complete anæsthesia, a prick not being perceived until the level of the abdomen was reached. The reflexes were abolished on both sides, excepting the left knee-jerk, which was exaggerated. The rest of the arterial system seemed little affected; palpation of the various superficial vessels did not show any manifest induration. The extremities of the upper limbs, the cheeks, the lips, the nose, and the ears were cold and cyanosed. The pulse was rapid and filiform and the cardiac action was irregular. The rectal temperature was 98·6° F. Palpation of the abdomen, which was difficult in consequence of obesity, did not reveal any tenderness or meteorism. There was no vomiting, diarrhœa, or melæna. There was complete retention of urine; catheterism yielded 800 grammes which contained some albumin. The history was that in the winter of 1911–12 she had suffered from transitory hemiplegia. On March 30th, 1913, she was seized with violent pains in the lower limbs, which were followed rapidly by paralysis and arrest of the circulation. After admission the cyanosis of the lower limbs increased and the retention of urine persisted. The patient became comatose on the night of April 8th and died on the following morning. At the necropsy the small intestine was found cyanosed from the lower part of the duodenum downwards, but its contents were not sanguineous; its vessels were not occluded. The large intestine, on the contrary, looked normal. There was slight hypertrophy of the right ventricle and a little thickening of the aortic valves. The heart and the whole aorta were removed together. There was no cardiac thrombosis. The aorta was of irregular calibre with slight dilatation at the arch and termination of its abdominal portion. On palpation a hard body was felt in its interior extending from the level of the renal arteries to the bifurcation. On opening the vessel this was found to be a hard blackish clot which did not adhere at any point to the aortic wall. The aorta was atheromatous throughout; there were ulcers and calcified spots which showed numerous little deposits of fibrin. Microscopic examination of the spinal cord by Nissl's method did not reveal any cellular lesion but marked vascular troubles; above the ninth dorsal segment the vessels of the cord and meninges were dilated; below it there was manifest ischæmia with some extravasation of blood, though no focus of hæmorrhage or disintegration. In the right cerebral hemisphere was an old focus of softening. The symptoms resembled those observed in previous cases of occlusion of the abdominal aorta, except that there was no premonitory period of intermittent claudication. The exaggeration of the left knee-jerk was probably due to the old hemiplegia. Digestive troubles, which have been described by some writers, were absent.

THE BUREAU OF SCIENCE, MANILA.

AN idea of the excellent work done by the Philippine Bureau of Science, Manila, may be gained by a perusal of its eleventh annual report recently issued by Mr. Alvin J. Cox, M.A., Ph.D., the acting director. In the biological section extensive investigations on plague with cultures and pathological material brought from Manchuria are mentioned, the publication of which is announced in Section B, No. 3, of the *Philippine Journal of Science.* These investigations cover the method of transmission of pneumonic plague, the influence on it of atmospheric pressure, the portal of entry and method of development, clinical observations, the bacteriology and pathology clinical and experimental, the susceptibility of animals to and protective inoculation against pneumonic plague, the infection of various animals with graduated doses ranging from one bacillus upwards, and experiments to determine the efficacy of various protective masks. Other investigations supply fresh experimental evidence bearing on the etiology of polyneuritis (beri-beri) in man, and embrace such subjects as the parasitic and pathogenic characters of various entamœbæ, surra, Addison's disease, adrenal tuberculosis, non-parasitic cysts of the liver, and rabies. Much work is done by the laboratory in the investigation of intestinal parasites and the preparation and use of various sera. It is to be feared that the publication of some of these results, which is announced to be made in the *Bulletin of the Manila Medical Society*, will unfortunately be indefinitely postponed, if not entirely foregone, owing to the disastrous fire the occurrence of which has been mentioned in THE LANCET. Besides the medical work of the Bureau important work is done in regard to botany, entomology, chemistry, geography, and geology, and investigations in applied science promise economic results of value in regard to fuel, fabrics, building materials, mining, engineering, and the like. The report is elaborately illustrated, the illustrations of the laboratories and industrial establishments indicating clearly the completeness of the equipment provided. The Bureau is a credit to an enlightened Government.

RUPTURE OF THE STOMACH OF EXTRAORDINARY EXTENT.

IN the *Journal of the American Medical Association* Dr. J. D. Singley has reported a recent case of rupture of the stomach of such extraordinary extent that it appears to be unique in medical literature. A big, well-formed, muscular man, aged 23, an iron worker, was injured at 10 P.M. by a large casting falling on his upper abdomen. He had not eaten anything since 6 P.M. He was admitted into hospital at 10.30 P.M., in a state of profound shock. The pulse was 136, the temperature was 96° F., and the respirations were 26 and of costal type. There was no external evidence of injury. Under treatment the pulse fell and improved in quality. The abdomen was flat in general, but slightly full in the epigastrium. It was dull from the pubes to the umbilicus, and in both flanks. There was no peristalsis. A doubtful history was obtained of the patient having vomited and passed blood per rectum. Rupture of abdominal viscera, probably stomach, intestine, or liver, with severe hæmorrhage was diagnosed, and the abdomen was opened through the upper right rectus at 1 A.M. After removing a great quantity of fluid and clotted blood, the stomach was found so widely torn that there was difficulty in determining the proper relations of the edges. Extending across the whole of the anterior surface was a V-shaped tear, with its apex at the pylorus, which was prolonged on to the posterior surface, leaving only 1½ inches of gastric wall connecting the portions of the stomach on either side. The gastric and gastro-epiploic arteries were torn across, the rents extending into the gastro-hepatic and gastro-colic omentum respectively. The margins of the stomach wound were brought together by continuous inverting sutures of catgut and linen, and the omental wounds were closed with catgut, leaving sufficient space in the gastro-hepatic omentum for the insertion of a split rubber tube with a wick. A cigarette drain was placed in contact with the anterior and lower portion of the stomach. No stomach contents could be recognised in the abdomen. The patient never rallied from the hæmorrhage and the shock of the operation, and died at 8 A.M. Dr. Singley thinks that the stomach must have burst when struck, much as an inflated paper-bag does. Such extensive rupture could not have been produced merely by crushing between the spine and the impacting body.

PULMONARY INFECTIONS OF UMBILICAL ORIGIN IN THE NEWLY-BORN.

IN the *Presse Médicale* for July 5th, under the title of "Le Poumon Ombilical," M. E. Bonnaire and M. G. Durante describe the complications which may develop in the lung of the newly-born infant as a consequence of infection through the imperfectly healed umbilical wound. As they point out, the type of infection varies according to the mode of penetration into the body through this portal; the chief types being a local cellulitis with general toxæmia, a gradual infection of the blood stream, and an embolic infection of pyæmic type. The lesions which develop in the liver as a result of these processes are fairly familiar; what is not so generally realised is that the lungs are almost as frequently injured. A characteristic case is described, that of an infant whose temperature rose abruptly five days after birth, death ensuing after ten days of oscillating pyrexia. The lungs were studded with miliary infarcts, which on section proved to contain numbers of streptococci. Similar micro-organisms were discovered in the depths of the umbilical area, but there was a noteworthy absence of gross naked-eye phenomena on its surface. The writers divide the pulmonary lesions developing under these circumstances into three classes: purplish, ill-defined areas of congestion arising as a result of toxæmia alone, and therefore free from micro-organisms; miliary infarcts with or without surrounding zones of inflammatory reaction, sometimes coalescing to form hepatised nodules which are superficially like broncho-pneumonic areas, but distinguished from these by the absence of bronchial changes and by the presence of micro-organisms in the smaller vascular channels; and, finally, cicatricial spots found in babies who have survived the immediate onslaught of the infection while succumbing to some later disorder. Clinically, it is difficult to discover any evidences of these phenomena, the only distinctive physical sign consisting of spots of dulness, perceptible under the lightest percussion. Prognosis varies with the type of organism discoverable in the umbilical tissues; with saprophytic bacteria there is little to fear; staphylococcal infections tend to remain localised; while the presence of streptococci or diplococci practically always foreshadows a fatal septicæmia. Premature infants make a poor fight against these infections; and those children who recover are nevertheless enfeebled and more or less permanently damaged. The difficulties which attend diagnosis are eloquently set forth by a comparison of post-mortem with clinical data. In 2603 infants umbilical infection occurred 832 times; in 41, or 5 per cent. of these, evidences of pulmonary complications were discovered by examination during life, while post-mortem observations revealed lesions in the lungs in 20 per cent. of the cases examined. These figures also serve to show that *le poumon ombilical* is by no means an unusual phenomenon, and that it is a formidable contributor to the death-rate of the earliest weeks of life.

DYSENTERIC ABSCESS OF THE LIVER.

TWO long papers on this disease appear in two successive numbers of the *Archives de Médecine et de Pharmacie Navales* for April and May and in the May number of the *Archiv für Schiffs- und Tropen-Hygiene*, the first by Dr. Pervès and Dr. Oudard, of the French Navy, describing 20 cases on whom they have operated in the Naval Hospital at Cherbourg, the other by Dr. O. Müller on 28 cases that have come under his care at Hong-Kong. This latter paper has some interesting remarks on etiology. Dr. Müller has never seen a case in a woman; one patient only could be called a drinker, nine of his patients were really teetotalers; five only were married, the other 23 were bachelors. Six were Roman Catholic missionaries, unmarried naturally, and living hard lives, while, on the other hand, he has not heard of a case among the married German missionaries in the 12 years he has practised in Hong-Kong. His explanation is that liver abscess is, like its causative dysentery, due to the untidy, careless methods of native cooks whose bachelor masters exercise no supervision over them, while, as he says, "the mere presence of a woman brings order and cleanliness into the kitchen." Some cases of liver abscess occur in patients who deny any attack of dysentery. Whence, then, come the amœbæ? Dr. Müller reports a fatal case—a young merchant, six months only in the tropics and never a day ill. His abscesses were multiple, and he died; his colon was in all its length covered with dysenteric ulcers. As to diagnosis, he says, as does Manson about ankylostomiasis, the first thing is to have the disease in mind. Ill-health, olive-green colour, swelling or bulging over the liver, pain in the shoulder, small tender areas about the liver are all suggestive. Perhaps the patient stands bent over to the right side to relieve the sensation of weight that comes with the enlargement of the organ, and often there are two or three large cutaneous veins over the liver without others to match them crossing the spleen. This last sign he considers a valuable as well as an original point. Treatment is in both papers conducted on similar lines, but Dr. Müller insists that exploratory puncture must be done under anæsthesia, so that it shall be done thoroughly. Once the diagnosis of liver abscess is made, its exact position must be discovered and free opening secured. Both papers advise a similar opening through the pleural cavity, below the lung, the pleura being sutured to keep the pus out of the pleura and prevent pneumothorax. Dr. Pervès and Dr. Oudard got better results when they swabbed the inside of the abscess cavity to rub off the adherent pus and amœbæ or when they used the curette. The treatment advised in both papers is good; the remarks of Dr.

Müller on etiology and diagnosis make his paper very well worth special attention.

A MEDICAL POET LAUREATE.

Dr. Robert Bridges, F.R.C.P. Lond., at one time attached to St. Bartholomew's and the Great Ormond-street Children's Hospitals, has been appointed Poet Laureate. He retired from medical practice 30 years ago, and most of his scholarly and elegant literary work dates from a later period.

WE regret to announce the death of Professor Francis Gotch, D.Sc., F.R.S., Waynflete professor of physiology and Fellow of Magdalen College, Oxford, at the age of 60.

MEDICAL AND SURGICAL EXPERIENCE IN THE BALKAN WAR.

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AND

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A CERTAIN halo of romance is usually attached to the circumstance of war, even when it is viewed from the medical standpoint. But while it is true that problems, which in routine work at home are non-existent, rise up in their primitive and difficult simplicity and call for immediate solution, and that the reduction of all energies towards a common end produces a tonic and stimulating atmosphere, at a base hospital affairs soon become regularised, work continues, romance fades, and on analysis one's experience seems to be merely commonplace and to follow in the natural sequence of professional knowledge. This consideration makes one hesitate to publish any account of the matter, lest it should too far have lost the savour of novelty. Moreover, the writings of many distinguished surgeons on the experience of the Boer and Russo-Japanese war have so clearly defined the possibilities of surgical practice under war conditions that a record of our doings in the recent campaign might seem superfluous.

Despite these considerations, we have endeavoured to give an outline of the work dealt with by the base hospital of the British Red Cross Society in Constantinople, in the hopes that a report of the organisation of a large voluntary detachment and of the incidence of some unusual diseases in so essentially foreign a country may prove of value for future reference. We propose also to outline our experience of surgical cases, giving details of the more interesting.

The opinions in this paper are essentially based on the work of our own hospitals, but in some degree they have been influenced by observation of the practice of Turkish and other voluntary organisations—the close concentration of the Turkish troops made such an interchange of experience an easy matter.

ORGANISATION.

In October, 1912, the British Red Cross Society dispatched to Constantinople three field units under the charge of Major Doughty-Wylie, C.M.G. The work carried out by this detachment and its subsequent reinforcements was of a varied character, in all, 1523 cases came under its treatment. In addition to auxiliary and refugee work four distinct hospitals were established.

The base hospital was situated in the Musée des Beaux Arts, Stamboul, and was in charge of the writers of this article in succession, assisted by Dr. H. L. Mann, Dr. F. R. Thornton, and Dr. M. C. Gardner. At a farmhouse on Lake Kuchuk Chekmije was a collecting hospital with an advanced dressing station under Dr. E. Anderson. Dr. R. O. Ward and Dr. L. G. Bourdillon were in charge of a similar establishment at Kalikrati; Captain J. H. Horton, D.S.O., I.M.S., and Captain P. A. Lloyd-Jones, R.A.M.C., were in control of a hospital for dysenteric cases at Baikos. It is with the cases treated at the first-named base hospital that we propose to deal.

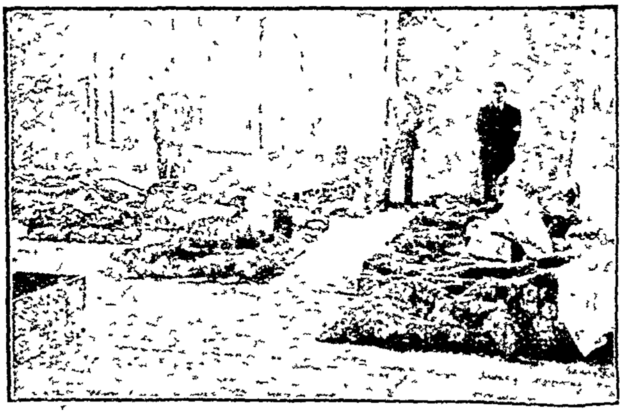
We will first give some general account of the establishment of the hospital and we will subsequently deal with our clinical experience.

Organisation of the Hospital.

The museum is a detached modern building, containing on one floor nine good-sized rooms and a spacious vestibule. It is situated on the side of a hill and has half an acre of land attached to it. The director, Halil Bey, put the whole at our disposal and assisted us in every possible way. As a hospital it was capable of containing, in addition to the staff, over 100 patients.

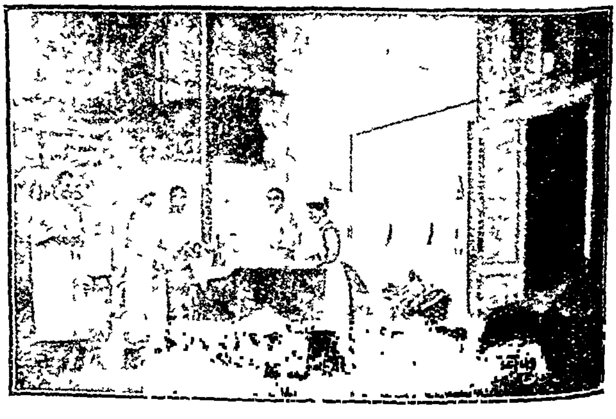
Gas and a limited water-supply from the main reservoir at Derkos were fitted soon after our occupation of the building. During the first few weeks the only bedding available was in the form of mattresses, which were placed on the floor. (Fig. 1.) Although the Turkish soldiers were quite at home under such conditions—in fact, preferring them to the limitations of camp bedsteads—this arrangement made it difficult to keep the floors clean and rendered all nursing and dressing very laborious. The floors were of good wood, but it was not till December, when we had them covered with oilcloth, that they could be kept in proper condition. Within a few weeks either light bedsteads with spring mattresses, or camp beds made locally by stretching canvas on a double X frame, were provided for all. (Fig. 2.)

FIG. 1.



Main ward showing the early arrangement of the beds.

FIG. 2.



The main ward when fully established.

The large number of cases with acute enteritis made waterproof bed sheets a necessity, the Willesden canvas we had taken out proving very unsatisfactory for this purpose. Some American cloth purchased locally was useful, but a good supply of stout jaconet would be invaluable under similar conditions. The Ottoman Red Crescent Society were always ready and liberal in the augmenting of ward necessaries, and they also assisted in the arrangements for the supply of food and fuel.

Water-supply and Sanitary Arrangements.

As [illegible] was available, but it was [illegible] Fresh water was carri[illegible] filtration was used for this purpose. We were provided with acid sulphate of soda and the chemicals for producing nascent iodine, but we never consistently employed these methods of sterilising water. Patients with enteritis were usually given potassium permanganate water. Lactic acid was a very popular disinfectant among the Turkish medical officers; they used it very commonly for their hands and for washing out their drinking-vessels. The regular use of tea as a drink was encouraged among the orderlies as the most effective method to secure boiling of the water.

Sterile water for the wards and operating theatre was conveniently prepared in large charcoal-heated samovars, or else by boiling in buckets on the ward stoves.

When we took up our quarters the museum was fitted with three latrines suited to native habits. These consisted of a large flagstone with a circular hole cut in it 6 inches in diameter and placed directly over a shallow cesspool. These frequently became foul and had to be temporarily closed. Sets of bench latrines with old kerosene tins as reservoirs were set up outside, chloride of lime being largely used as a disinfectant. In the grounds on the slope various refuse pits and a large incinerator were dug. The excreta collected in the wards were thrown into large covered enamelled-iron cans, kept just outside; these were carried out and the contents buried every hour by native orderlies. The bed utensils were washed out with a solution of crude phenol.

The many serious enteritis cases were a source of considerable trouble, for to get the soiled bed linen properly washed and dried was always difficult, especially as the weather was variable. The local authorities arranged for the steam sterilisation of all the patient's kit.

Commissariat.

Two wooden sheds were put up and fitted with good-sized iron stoves. One was used for the patients and the other for the staff, the former being entirely handled by native cooks. The rations supplied to the patients were in general simple: a mess twice a day, consisting of rice, vegetables, and some meat, was the staple of their diet; each patient consumed about a pound of bread a day. Tea was their usual beverage, and various forms of condensed milk were much used. The native sour milk "jaodt" was very popular, it was given as a delicacy, and also proved a satisfactory form of food for the cases with dysentery.

Personnel.

Each unit consisted of three medical officers, three dressers, and 12 orderlies. No female trained nurses were included. Mrs. Doughty-Wylie obtained the services of some French sisters and Turkish ladies, and subsequently of some Armenian nurses. To offer advice after the event is easy and of little value, but we may make a few notes of our opinions, although the uncertainty of the conditions to be encountered at such a distance must always make the satisfactory selection of the *personnel* a matter of chance. The dressers were unnecessarily numerous; they should rank as assistant medical officers, and have delegated to them definite duties, such as store and dispensary keeping; a large proportion of the actual dressing can be done by properly trained nurses. The numerous orderlies proved a great stumbling-block, for unless some system of money fines be instituted the discipline it is possible to exact in a voluntary unit in a foreign country is very limited. The work of the general orderlies was done equally well, in fact better as far as ward work was concerned, by native labour; the work of a few good male nurses was invaluable. A carpenter is essential, and a reliable ex-non-commissioned officer to act as quarter-master and generally supervise the men can be of great assistance.

Surgical Outfit.

A well-lighted room with a stone floor was available for conversion into an operating theatre; we had a good table and a steriliser and autoclave heated by gas, presented by the Ottoman Red Crescent Society. The supply of dressings from England was plentiful, and they were sterilised in suitable bundles as required.

Carbolic acid was provided as our principal antiseptic. We went out provided with what appeared to be a large supply, but it soon became exhausted. It is, of course, bulky in relation to its disinfectant power, and we consider that for war service its use should be discontinued and a similar bulk of lysol or kindred substance be substituted. In this way at least 25 times the amount of disinfectant solution could be made for the same weight of chemical. The mercuric solutions are a nuisance on account of the frequency with which inexperienced orderlies plunge instruments into them. Large flat enamel trays (such as are used by photographers) proved most serviceable for ward dressings.

The instrument equipment was that contained in the two sets of Royal Army Medical Corps pattern medical and surgical panniers. A few additional instruments, such as intestinal clamps and mastoid gouges, were also taken. We were not provided with any X ray apparatus, and the lack of this would have been severely felt had we not been working in Constantinople. As it was, Dr. J. F. McClean, of the British Seamen's Hospital, [illegible] in many other ways, himsel[illegible] skiagrams of our patients [illegible] simplest bacteriological [illegible] December, when Major A. B. Smallman arrived with a complete equipment.

Language.

A word may here be said in relation to this subject. We are of the opinion that every medical officer of a voluntary unit working in a foreign country should be able to make himself understood by the educated classes and in their own tongue. A failure in this respect is apt to lead to endless delays and misunderstandings. In Turkey, to gain even a moderate knowledge of the native tongue was almost impossible in the time available, but a fair command of French was quite sufficient to assist in the many petty but necessary negotiations.

Transport of Wounded.

The Museum Hospital was situated some five minutes' walk from the railway station and military landing-stage. During the early part of the war the Turkish authorities relied almost entirely on rail transport for the wounded; from the station to our hospital they were carried on stretchers. Very few regular ambulance wagons were available; rickety arabahs formed the main type of horse transport within the town. The patients treated at our outlying hospitals were brought down by water. Major Doughty-Wylie arranged for the loan of a tug from the Turkish Admiralty, and this method proved very satisfactory for conveying supplies and wounded to and from Kuchuk-Chekmiji, Kalikrati, and Stamboul. It was found that the wounded travelled best on stretchers placed in large sailing caiques in tow of the tug. The Turkish authorities adopted this method during the latter stages of the war.

GENERAL RESULTS.

The following statement shows the total number of cases which came under our care at the Museum:—

Number of in-patients discharged cured or relieved 508
" " " who died 70
Total, 578 Mortality percentage, 11·4
Number of out-patients treated (no deaths) 300

The incidence of the fatal cases is of some interest. Of the first 130 cases treated no less than 54 died, a mortality of 41·6 per cent., whereas in the latter 448 cases the mortality-rate was only 4 per cent. The striking contrast offered by these figures is accounted for by the deplorable state in which the wounded arrived at the hospital in the early stages of the war. They had been ill-fed both before and after being injured, and the transport arrangements were such that many men hit at Kirk Kilisse and Lake Bourgas spent from eight to 12 days on the road before arriving at Constantinople. When they arrived, in addition to their wounds, most of the survivors were suffering from acute dysentery or some form of enteritis—indeed, the latter complication was most often the cause of a fatal issue. After the renewal of hostilities the men had been lying for months behind the Chatalja lines, some 20 miles from the city, the commissariat arrangements had been reorganised, and the men were in good *morale* and sound physical condition. The wounded were brought down from the front in from one to four days, and their general condition was in striking contrast to that of the "dead beats" of whom so much was seen during the first months of the campaign.

If the figures given above are classified, in order to show the relative incidence of the medical and surgical cases treated, the result is as follows:—

	Total.	Deaths.	Mortality.
Medical cases	227	24	10·6%
Surgical "	351	46	13·1%

Under the heading medical cases, none with wounds have been included, whereas under the surgical heading many of the cases were affected by medical complications.

We will first record our observations on the medical conditions, and terminate with a statement of the surgical cases dealt with.

MEDICAL CONDITIONS.

The epidemic enteric diseases, first and last, undoubtedly make the medical history of any campaign, and the Balkan war has proved no exception to this rule—indeed, the appearance of cholera among the troops of both sides in November paralysed all military activity for some weeks. The other diseases which arose were of no great importance, unless we give starvation a separate heading. The acute infections of the lungs and subacute rheumatism disabled a certain number of men, but never in epidemic proportions, and as the treatment was on the usual lines we shall not further refer to them. Thirty-one men were admitted to the Museum on account of parasitic conditions of the skin, a condition common to every man in the army. Sterilisation of their clothing, bathing, and the inunction of sulphur ointment did not fail to put all on the active list within a few days.

Dysentery.

Twenty-eight cases of infective diarrhœa came under treatment; 16 died. Many of the surgical cases were affected by a similar complaint. In the more acute cases it was very difficult to differentiate the condition from cholera. We were not able to obtain bacteriological evidence until December. Major A. B. Smallman, R.A.M.C., then examined a series of cases. In those classified as dysentery he found the Flexner bacillus in one only of 20 examinations: in no case were amœbæ found. Cholera vibrios were isolated from several cases which were clinically suspected of this disease. To whatever infection the enteritis was due it proved very fatal in its results, and in the severe cases responded little to treatment.

Symptoms.—Colicky abdominal pain, diarrhœa, with a certain amount of collapse. Vomiting was not common; it occurred in several cases in which many round worms were brought up. The stools numbered on an average about 15 a day; they were fluid, and contained mucus, but little fæcal matter; blood was seldom seen. The subjects became rapidly emaciated. In the acute cases death occurred on the third or fourth day; others in which the enteritis appeared to be subsiding died after the first week in a manner suggestive of cardiac failure. The temperature ranged about 97° F. in acute cases; in the more chronic it was sometimes irregular and above normal. The urine was scanty, the pulse small and rapid.

Treatment.—In the acute cases drugs were of no avail; infusion with hypertonic saline appeared to save one or two. Several different styles of drug treatment were tried; all had their merits extolled by one or other who considered them of value. They are as follows:—

(*a*) Potassium permangate, gr. i. to gr. iv., to 1 pint of water; dose several pints a day, or as a pill, gr. ii., every six hours.

(*b*) Calomel gr. i., pot. permang. gr. i.; alternately four-hourly.

(*c*) Mag. sulph. and sod. sulph., āā ʒss. hourly for two days. Followed by pil. opii gr. i., or tinct. opii ♏xv. four-hourly.

(*d*) Bismuth gallate, gr. xxx. four-hourly; sometimes combined with salol or B. naphthol.

(*e*) Calomel gr. ⅙, opium gr. ⅛, six-hourly.

We consider that the latter method of treatment proved most satisfactory for the chronic cases. The diet was restricted to milk and "jaodt." Emetine was also given in several cases without much effect: as there was no evidence of the condition being due to amœbæ this was not surprising.

Cholera.

In the first few weeks of November there was a sudden increase in the army of the number of cases which had been regarded as acute dysentery; the possibility of some of the cases being really cholera was considered, and eventually rendered certain by bacteriological examination. That this confusion in diagnosis should have arisen may at a distance seem remarkable, but actually the clinical course of the cases was very similar. The symptoms of the certainly choleraic patients were often not classical, and laboratory proof was obviously only occasionally obtainable.

Symptoms.—Acute abdominal pain and diarrhœa were fairly constant; we did not see any cases of cholera sicca; vomiting occurred in about half the cases. Cyanosis and torpor were marked, and anuria was not uncommon. The cases with extreme collapse died in about 24 hours; many fatal cases, however, survived for two or three days. Cramps of the extremities were not often seen. The stools were frequent, and typical only in a minority of the cases. The wasted, hollow-eyed appearance of the victims did not vary much from that of the acute dysenteric cases. The temperature was always markedly subnormal. The civil population of Constantinople were infected to some extent at the time of the epidemic in the army, and the figures of incidence and mortality showed the graduation common in such epidemics, the mortality rate at the commencement being about 80 per cent. and gradually dropping to about 25 per cent. The figures for the army are not yet available.

Treatment.—Only four cases (three fatal) in which the diagnosis was certain were retained at the Museum; whenever possible suspicious cases were sent on to the Turkish cholera hospital. Infusion with hypertonic saline and opium by the mouth seemed to give hope of the best results; most of the drugs used for the dysenteric cases were also tried. Kraus,[1] who appears to have had considerable experience of this class of case on the Bulgarian side, considers that an excellent effect was produced by administering 5 minims of tincture of iodine three times a day.

Enteric Fever.

Only 5 certain cases were treated by us, with one death. The disease usually runs a mild course among the native population, being endemic. Three cases (one fatal) occurred among the staff and were treated by Mr. McClean in his hospital.

Typhus.

This disease is endemic in the Balkan Peninsula but not now of very frequent occurrence; the small number of medical men who had had practical acquaintance with it often resulted in the diagnosis being doubtful or overlooked. In the museum 18 cases were under treatment. From the fact that a number of patients were affected in from 14 to 21 days after they had been in hospital it may be assumed that they were infected there. Complete isolation was difficult to maintain, although suspected cases were put in a special ward.

Symptoms and course.—In the prodromal stage chills, constipation, and a feeling of malaise were common. In a day or two the temperature rose within 24 hours to 104° F.; it remained high for 10 to 14 days, the average being above 103°, and without any marked morning remission. It dropped to normal in from two to three days. On the second to fourth day of symptoms a petechial rash appeared; it was distributed evenly over the trunk and often extended to the limbs. The rash was dusky red in colour and was not obliterated on pressure; papules were also sometimes seen. Constipation was the rule; there was no abdominal pain or distension. Enlargement of the spleen was noted in several cases, but most of the patients had a previous history of malaria. The patients quickly sank into a state of prostration, passing on to coma, and in the later stages of the severe cases a low muttering delirium was common. In every case there was some evidence of bronchitis. The respirations and pulse were rapid, averaging 30 and 110 respectively. A fatal termination occurred between the sixth and twelfth day. In the non-fatal cases, after the crisis, recovery was rapid and uninterrupted. Only two deaths occurred.

Treatment.—Sponging was employed for cases with a temperature of over 104°. The diet was limited to fluids. Drugs were only given as suggested by the symptoms.

Unfortunately, no satisfactory bacteriological investigation of these cases could be carried out. Those instances in which the blood was tested for the Widal reaction gave a negative result.

(*To be concluded.*)

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[1] Kraus: Verhandlungen der Wiener Medizinischen Gesellschaft, Feb. 8th, 1913.

ANNUAL REPORT FOR 1912 OF H.M. CHIEF INSPECTOR OF FACTORIES.

THIS report[1] has recently been issued by H.M. Stationery Office. This volume, like its predecessor, which we noticed appreciatively on its appearance,[2] contains particulars of the work of the Factory Department of the Home Office for the year under review.

As in the previous report, the bulk of the present volume, which occupies 274 folio pages, is devoted to the sectional reports of the superintending divisional inspectors, or to the special reports of the medical inspector, or of the chief lady inspector. In a brief preface Sir Arthur Whitelegge, the Chief Inspector of Factories, summarises the work of his department for the information and guidance of the Home Secretary.

Sanitation—Cleanliness.

To the subject of cleanliness special attention is directed in each of the six divisional reports, which in this regard are, on the whole, encouraging; but in very many instances they indicate the urgent need for radical improvement. In the larger works of the great towns in which articles of food are manufactured a high standard of cleanliness is maintained, but in the smaller works the conditions are in many instances unsatisfactory. Not only are the premises unsuitably constructed and badly kept, but the filthy habits of the workers materially add to the other insanitary conditions. Revolting instances of this are quoted in at least two of the reports. The sanitary condition of bakehouses varies greatly in different districts. In the large bakehouses of London, Birmingham, and Glasgow a high standard of cleanliness obtains; but in many of the smaller bakehouses, especially in the rural areas of the northern division, the conditions are far from ideal. The defects noted include unsuitable and badly kept premises, general want of cleanliness, and insufficient space, in consequence of which flour and fuel are sometimes stored together. In a bakehouse recently inspected the dough was mixed in what was originally a stable. A gully was detected in the centre of the floor which was apparently connected with a main drain. About 10 yards from the door of another bakehouse there was an open midden for manure and other refuse; great numbers of flies were seen going between the midden and the bakehouse. In several country areas in the north the dirty state of the bakehouses is due to the neglect of the local sanitary authorities.

Sanitary Conveniences.

This important subject is dealt with at length by several of the inspectors, female as well as male. In London and in most of the great towns the standards adopted by the authorities are fully abreast of modern sanitary knowledge, but many instances are given in which affairs are in a deplorable state. The chief defects noted are: (1) want of privacy, due to insufficient separation of closets from the work places; (2) failure to provide supervision, and resulting persistence of filthy conditions; (3) structural defects in the closets, although these have mostly been constructed under the sanction of the local authorities. Dealing with this matter in a special report a lady inspector remarks upon "the obtuseness in matters of propriety of employers who cannot see for themselves that to set men to control the daily use of women's conveniences is intolerable in civilised opinion."

Bathing Facilities.

In several large works in the Midlands, where arduous labour causes profuse perspiration, baths are now being introduced, greatly to the comfort of the workers. In Birmingham the authorities have constructed a number of cottage baths, which are constantly used and highly appreciated. In Glasgow no large bakehouse is considered complete without a bath, and bathing facilities are being provided in other large establishments in that city.

Electrical Accidents.

In spite of the great increase in the use of electricity it is satisfactory to learn that the number of accidents therefrom in factories is decreasing. Mr. G. Scott Ram deals fully with this subject in the present report. He says that out of 19 cases of fatal accidents in only 9 was it clear that attempts at resuscitation were made by means of artificial respiration, and that even when this was tried the effort was discontinued after insufficient interval. Mr. Ram refers to an instructive paper on Electrical Accidents read before the Electro-Therapeutical Section of the Royal Society of Medicine by Dr. S. Jellinek of Vienna,[3] and also to an important letter to THE LANCET on the Dangers of Electricity, by Dr. Reginald Morton, president of the section.[4] In view of the importance of this matter Dr. Morton's declaration in his letter to us cannot be too frequently repeated: first, that death from electrical shock is only an apparent death, at first; and, secondly, that there is practically always a time, varying from a few minutes to two hours, within which it is possible to resuscitate the victim by artificial respiration if resorted to at once.

Mr. Ram insists on the importance that no time should be lost in getting assistance after the accident, and that the efforts should be continued for at least two hours. Owing to the comparative rarity of electric shock accidents very few medical men can have had actual experience in their treatment; and it is certain that some, at any rate, do not realise the importance of perseverance in artificial respiration. In a number of fatal cases investigated by Mr. Ram the persons present have started this expedient, and a doctor has been sent for, who on arrival has pronounced the patient dead, and has gone away within half an hour of the accident. A case of this kind was cited by a witness at a recent public inquiry, where, after the doctor had pronounced the victim dead, the bystanders succeeded in bringing the patient round by means [illegible] e a doctor is reported [illegible] to restore animation [illegible] have been useless, as [illegible] nstantaneous.

Anthrax.

The special report of Dr. Thomas M. Legge, H.M. Medical Inspector, contains particulars of investigations respecting cases of infection by anthrax, and of poisoning by carbon monoxide and by arsenic, lead, and other metals, as well as respecting the influence of certain "industrial dusts" of various kinds in causing mortality from tuberculous and other affections of the respiratory system.

The essential facts bearing on infections by anthrax conveyed by wool, horsehair, hides, and skins, are indicated in a series of useful tables relating to such occurrences in the year under review. Investigation has established the danger attaching to certain dust-extracting machines, Dr. F. W. Eurich having cultivated anthrax from samples of dust submitted to him. Attempts are now being made to deal with this dust by means of exhaust ventilation. All the cultivations from materials without trace of blood were isolated colonies, contamination of the wool having apparently taken place in India during the process of washing. The numerous instances in which anthrax was found in East India wool by Dr. Eurich sets at rest all [illegible] from our ignorance of [illegible] India wool really con- [illegible] the Anthrax Investi- [illegible] acteriological examination of all reported cases of anthrax. Among the results of special interest may be mentioned the necessity of abandoning the hitherto prevailing theory of "no blood, no anthrax," for anthrax spores have been cultivated from material—especially East India wool and skin mohairs—in which there was no evidence of blood. The explanation of this as due to "tub-washing" is at least a probable one.

In an interesting recent paper[5] Dr. Eurich has set forth his suggestions for the prevention of wool-sorters' disease. It has been shown experimentally that where wool is in a loose state, and consequently easily permeable, anthrax spores in blood-clots will be killed by "steaming" in about 15 minutes. As far as blood-clots are concerned, this method of disinfection is apparently satisfactory. But, apart from possible injury to the fleeces, the difficulty of disinfecting wool in bulk by steaming will probably prove insurmountable. Experiments in this direction are, however, [illegible]

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[1] Factories and Workshops Annual Report for 1912 of Chief Inspector. Folio pp. 274. Wyman and Sons. Price 2*s*. 5*d*. [Cd. 6852.]

[2] THE LANCET, July 20th, 1912, p. 176.

Carbon Monoxide.

Of the 29 reported cases of poisoning by *coal gas*, which contains about 8 per cent. of carbon monoxide, a considerable proportion occurred in gasworks. Eleven persons were overcome by escape of gas from the fittings in the work-places, and nine cases of poisoning were due to discharge of exhaust gases from a gas engine. In these cases the town gas-supply was mixed with water gas which contained about 45 per cent. of CO. Thirty-three cases, with five deaths, were caused by *blast furnace gas*, which contains about 35 per cent. of CO. In 1912, as in previous years, the total loss of life was increased by the circumstance that in their gallant attempts to save their comrades several of the rescuers themselves perished.

Metallic Poisoning.

Of the cases of *arsenical poisoning*, which were few in number, the majority were due to the handling of bird skins recently imported from the East Indies, seven boxes of which yielded on examination from 16 to 17 lb. of white arsenic. Compared with previous years, there was in 1912 a diminution of *lead poisoning* in some processes and an increase in others. Recent experience tends to emphasise the view that control of sources of dust is the most important factor in reducing the number of attacks, and this can best be accomplished by periodical medical inspection. Dr. Legge expresses the belief, based on the investigations of Mr. G. E. Duckering,[6] H.M. Inspector in Birmingham, that if the amount of lead present in the air breathed contained less than 5 milligrammes per 10 cubic metres of air, cases of encephalopathy and paralysis would never occur; and he further believes that somewhere about 2 milligrammes of lead is the daily dose which, inhaled as fumes or as dust, may in the course of years set up chronic plumbism. Of the 517 cases of lead poisoning in males the proportion noted as severe was nearly 20 per cent., or 9 per cent. less than in the decade 1900–1909. Of the total cases recorded in the table 82 were suffering from paralysis and 63 from weakness of arms or loss of power. The cases of lead encephalopathy numbered 11. The reported cases of *mercurial poisoning* were few in number, several of which occurred in the manufacture of felt hats. A useful paper dealing with this subject, by Dr. F. E. Tylecote, of Manchester, has already been noticed in these columns.[7] The possibility of mercurialism affecting the wearer of felt hats would appear to be not altogether remote.

Industrial Dusts and Respiratory Diseases.

It is familiar knowledge that the effect of dust in the causation of disease differs greatly according to the nature of the dust, the more injurious kinds being those containing silica. Several years ago inquiry was made concerning the excessive mortality in the Stockbridge district among ganister workers exposed to dust from that material, which consists almost entirely of free silica. A table is now given showing that in the period 1891–1900 the mortality among ganister workers was equal to 82·9 per cent. of the total deaths; and although the ratio has since fallen, it still amounted to 67·8 per cent. in the period 1901–1911. Dr. E. L. Collis, H.M. Inspector of Factories, has long been occupied in special investigations concerning the effect of mineral dust on granite cutters, ganister workers, and stonemasons, among all of which pulmonary tuberculosis is inordinately fatal. After diligent inquiry, Dr. Collis suggests, *inter alia*, the generalisation that dusts containing free crystalline silica are associated with a death-rate from phthisis which increases in proportion to the amount of such silica inhaled. Hitherto attention has been centred on the relation between dust inhalation and pulmonary tuberculosis, although it is beyond question that other diseases of the lungs are caused by dusts of various kinds. Evidence respecting these diseases is difficult to obtain, and they are certainly less fatal to those affected; nevertheless the damage due to dust—such, for example, as that generated in stripping cotton-carding machines—is very serious, and requires official attention. Further progress is reported respecting mechanical dust removal in cotton mills; practically all the mills in Lancashire, Yorkshire, and Glasgow are now provided with efficient ventilating plants. Exhaust draught for the removal of dust from granite lathes has given satisfaction in Kilmarnock, and has been successfully applied to dressing machines elsewhere. Summarising the experience of the northern district, Mr. W. Williams writes that in few directions have the actions of the inspectors been more productive than in their efforts to secure the removal of dust from workrooms, and with the increasing number and experience of the ventilating engineers the standard of attainment is constantly rising. In many processes in which a constant fog of dust was considered unavoidable a few years ago the atmosphere is now clear, and a very high degree of skill has frequently been displayed to ensure that the exhaust arrangements shall not lead to inconvenience either from want of adjustability or from draughts of cold air.

THE NINTH RESEARCH REPORT ON THE METROPOLITAN WATER-SUPPLY.[1]

Dr. A. C. Houston, Director of Water Examination, Metropolitan Water Board, has recently issued his ninth research report on the London water-supply, and it proves to be of a highly interesting and at the same time very reassuring character. These scientific investigations carried out by Dr. Houston since 1905 have enabled him to advise with greater confidence upon matters affecting the quality and safety of the metropolitan water service. It is not so long ago that sanitarians of some eminence looked with grave suspicion upon the water-supply of London, mainly because its chief sources were two contaminated rivers, the Thames and the Lea, into both of which sewage, after more or less adequate treatment, was discharged by up-river towns and districts. Water from such a source, it was contended, was very likely to become an agent in the diffusion of certain diseases, and particularly of typhoid fever. But as the result of Dr. Houston's investigations we are perhaps warranted now in regarding the Thames (and presumably the Lea also) with less disfavour than formerly. This investigator in previous reports has shown that fæcal streptococci are not uniformly present in the river water except in very sparse numbers; he has also demonstrated that "uncultivated" typhoid bacilli die more speedily than their "cultivated" brethren in Thames water under conditions of storage, and that "cultivated" typhoid bacilli cannot maintain their vitality for more than a few weeks. In the report now under consideration attention is directed to certain reassuring investigations concerned with the search for pathogenic bacteria in raw unpurified river water, and notice is called also to the negative results of an exhaustive search for B. typhosus in samples of crude sewage. The evidence he has thus acquired leads Dr. Houston to think that the river Thames might be reinstated in public opinion as a source of water-supply provided that the river water is always adequately stored prior to filtration.

The Search for Pathogenic Microbes in River Water.

A short summary is given of the previous inquiries respecting the presence of B. typhosus and Gaertner's bacillus in raw river water. Taking all Dr. Houston's observations together, involving the study of 29,470 specially selected colonies from 257 raw river water samples, only two typhoid-like organisms were discovered, and out of 22,141 other colonies from 101 samples examined only one Gaertner-like microbe was detected. It is very probable, therefore, that B. typhosus and Gaertner's bacillus are not habitually present in small amounts (10 c.c.) of raw river water. If the typhoid microbe when added artificially in large numbers to the raw river water cannot be isolated after from one to three weeks' storage, and if the B. typhosus cannot be found in 10 c.c. of river water which is destined to be stored for several weeks antecedent to filtration, it is obvious that the facts adduced by Dr. Houston must have a high practical significance, and we can reasonably infer that if river water be stored for four weeks prior to filtration, the margin of security is great—much greater indeed than was formerly believed—in view of the practically negative results attending the prolonged search for the typhoid bacillus in the river water.

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[6] Special Report on Dangerous Processes in the Coating of Metal with Lead, &c., 1907 (Cd. 3793).

[7] THE LANCET, Oct. 26th, 1912, pp. 1137 and 1166.

[1] Metropolitan Water Board. Ninth Research Report by Dr. A. C. Houston, Director of Water Examination, on Search for Certain Pathogenic Microbes in Raw River Water and in Crude Sewage.

The Search for the Typhoid Microbe in Sewage

The search for B typhosus in sewage has become of additional importance owing to the comparatively recent discovery of carrier cases, some experts calculating that about 4 per cent of an ordinary population are typhoid carriers Dr Houston mentions that in the urine of the first case of the kind that came under his notice he found nearly 10 millions of the typhoid bacillus per cubic centimetre Taking 40 ounces as the *ordinary daily urinary* excretion and 30 gallons as the average daily volume of sewage per head the calculation is made that the sewage would contain about 330 typhoid bacilli per cubic centimetre Sewage contains some 23,000 more excremental bacteria than such a water as that from the Thames so that on this basis the river water might possibly contain 0 01435 typhoid bacillus per c c , or 1 435 per 100 c c , or in round numbers 1 in 69 c c As the purification processes now in operation upon the London water taken from the river, improve the water about 1000 times, it would not, says Dr Houston be an unfair *inference to conclude that the consumer would* have to drink 69 000 c c (over 15 gallons) in order to partake of a single typhoid bacillus It therefore requires imagination to conjecture the possibility of an ordinary consumer of London water imbibing an infective dose of typhoid infection from this source always assuming the absence of accidental infection of the water between the works and the tap An account is given of a further series of experiments for the discovery of B typhosus in sewage and details are supplied of the methods employed in the experiments and calculations A table is also given recording results obtained over an extended period From these figures, which are 'deductively inferential ' it seems justifiable to say that they lend more than mere theoretical support to the view that the purification processes, when efficiently and without intermission practised by the Water Board, amply safeguard the health of the metropolis

Where is the Typhoid Bacillus ?

Dr Houston says that the title of his report might almost have been Where is the Typhoid Bacillus? for it is by this time evident that we ingest many excremental bacteria without encountering a single B typhosus The home of the typhoid organism is not so much in impure water, or even in the crude sewage from a large community, as in the factories ' of disease as exemplified by the carrier cases Dr Houston then alludes to the fact that American sanitarians attribute a considerable proportion of their typhoid cases to consumption of impure water, some authorities going so far as to ascribe the endemicity of the disease in certain towns and districts to this cause Comparison is made in a tabular statement between the typhoid death rate in 15 cities of Northern Europe and 15 large cities in the United States and from this it is apparent that the typhoid mortality is far higher in the latter than in the former The lowest rate in the group of American cities is given as 8 8 per 100 000 in Cincinnati and the highest as 58 7 in Minneapolis Of the European cities Edinburgh with a typhoid mortality rate of 1 3 per 100 000 is the lowest and Paris with a rate of 5 6 the highest In Dr Houston s opinion the part played by water supply in the causation of endemic typhoid fever is apt to be exaggerated and it is almost incompatible with the view that the customary draught (say half a pint or about 284 c c) of a satisfactory *(or even of an unsatisfactory)* water *supply does not contain* 1000 excremental bacteria and therefore cannot contain a single typhoid bacillus It may however, be urged that especially in unfiltered water the microbes may be unevenly distributed in the liquid and may be aggregated in masses In this way while the majority of the consumers might escape some few might get a super dose of the microbes (spotted distribution) and develop the disease But the metropolitan river derived water is all filtered before being sent to the consumer and this fact presumably reduces the danger of ' spotted distribution ' to a minimum Assuming an equal apportionment of separated germs in the water the London consumer could never ' even with the worst of bad luck receive in one draught an infective dose of typhoid fever unless it can be believed that a solitary B typhosus can start the infective process

Summary and Conclusions

If the risks of using for waterworks purposes, an initially impure river water are really less than was previously supposed under every day conditions it is asked what steps should be taken to render the supply absolutely safe ? To this *Dr* Houston replies that ' attention should be concentrated upon the avoidence of accident Since the discovery of carriers the question of accident has assumed very grave importance there being always the possibility that a carrier may exist among those employed on the waterworks, and whose discharges might find an entrance in one way or another into the water Finally, Dr Houston sums up the danger of specific pollution volume for volume, as ranking in the following order 1 The carrier unit—the concentrator and factory of the disease—the genesis of epidemics 2 The unit person of unknown health history who may be in a position of (1) and who *is* therefore in a potential sense placed second, but who also in the great majority of instances it may

factor 3 The collection o

exemplied in a contaminating

town Here the dangerous carrier element being reduced by dilution to normal proportions less than one typhoid bacillus per 0 001 c c of sewage might be anticipated to be present on the basis of the foregoing observations

Dr Houston frankly admits at the outset the grave responsibility which he incurs in writing this reassuring report, which *he allows may conceivably be interpreted* by some persons as offering inducements for the relaxation of any of the present processes of purification of the river water He however, hopes that his report will neither be misinterpreted or misapplied, but that it will be looked upon chiefly as affording confirmatory evidence that the protection afforded to the metropolitan consumer is assuredly greater than has hitherto been believed

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES

THE annual general meeting of this association was held at the rooms of the Medical Society, Chandos street London W , on July 3rd Surgeon General G J F EVATT, C B the President being in the chair

The report of the council for 1912-13 and the balance sheet were presented and approved The following were elected officers for the ensuing year —President Surgeon General Evatt Chairman of council Mr D B Balding Treasurer Mr A A Napper Honorary secretary Dr Major Greenwood Auditor Mr A Withers Green

Mr E J MOTT read a paper on the Poor law Medical Service and the National Insurance Act Mr Mott dealt briefly with the origin of the Poor law medical service He pointed out that medical relief was not only the least objec*tionable of all modes of relief*, that within reasonable limits it was admissible and in the existing state of society even necessary He considered the chief improvement in the system of outdoor medical relief had been the establishment of public dispensaries in the metropolis and large urban

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Insurance Act however important the other officials might be the success or failure of the Act must largely depend on the

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experience of Poor law officials was that it had largely devolved on them to see that the provisions of the Act were put into operation To them was allotted the duty of seeing whether *persons applying for* Poor law relief were insured persons and if not why not The district medical officer was constantly required to say whether an applicant if an insured person could be treated at home One thing was certain the Poor law would be required to supply the deficiencies of the new system and owing to the wording of certain clauses of the Act it was *extremely* difficult to resist panel doctors when recommending their insured persons to apply for admission to the infirmary Certain difficulties would shortly embarrass the working of the Act They were on the eve of the suspension of medical benefits to deposit contributors who had not sufficient funds standing to their credit, and to members of Approved Societies who had fallen into arrear with their contributions. This would be followed by a demand that those who received no benefit should be released from the liability of contributing. Many of the Approved Societies were complaining of the heavy drain on their funds, and it was freely rumoured that unless some drastic steps were taken to lessen the outgoings, the financial stability of the societies would be seriously impaired.

Dr. C. **Thackray Parsons** read a paper on the Present and Future of the Poor-law Infirmary. He briefly outlined the history of the Poor-law infirmary. With the coming of the infirmaries the medical treatment of the indoor sick poor was revolutionised. At the present time hospitals sent more patients to Poor-law infirmaries than the latter to hospitals. Infirmaries now required all the requisites of general hospitals, and were mostly furnished with them; but the Poor-law infirmary was not so well constructed for its purpose, nor so adequately staffed as the general hospital. It was a mistake to suppose that the infirmary was restricted to the treatment of chronic cases; the average of acute cases was 68 per cent. In the future much more would be expected of the Poor-law infirmary both by the public and patient, and all modern treatment would have to be supplied. The Insurance Act would affect the Poor-law infirmary in two ways: (1) the number of phthisical and maternity cases would be reduced; and (2) there would be an increased demand for institutional treatment. The Poor-law infirmary required a larger staff, and particularly a staff of specialists. In every area there should be infirmaries specially equipped to serve the special needs of an aggregation of unions. There should also be a special training centre for Poor-law nurses. He thought, too, that medical students should be admitted to the infirmary wards.

In the discussion which followed the reading of the papers Dr. **Major Greenwood** argued that it was most useful for Poor-law medical officers to meet and hear the opinions of the chief lay officers of unions. Too many Poor-law medical officers confined themselves entirely to their medical duties and were very ignorant of the Poor-law system. Higher humanitarian ideals were held now than in 1834, and by fuller definitions of the meaning of "destitution" it was possible to bring the ideals of earlier periods into line with those of the present and future. With regard to the effect of the National Insurance Act on the Poor-law Medical Service he observed that the number of medical orders granted in his own union up to the end of the last quarter had shown little if any diminution on the number issued in previous years. With regard to sanatorium benefit, he felt strongly that the present arrangement of including payment for the treatment of tuberculosis in the capitation fees of panel doctors was not calculated to further the national crusade against tuberculosis.

Mr. A. **Withers Green** failed to see how medical students could be usefully admitted to infirmary practice, for there was already a dearth of students in the general hospitals. He asked whether the necessary bacteriological work in infirmaries could not be done by the medical officers of health.

Mr. W. **Holder** thought that by the Insurance Act the medical profession had been put into the "stock-pot," and there would be evolved later a new public medical service for the treatment of the people. In his opinion the Poor-law medical service would be greatly relieved, and the public health much better preserved than hitherto.

Surgeon-General **Evatt** thought the future of the Insurance Act was absolutely assured. The prison and Poor-law medical services had been based on the old bad military service. This had been abolished in the army, and would shortly be reformed in the other services. Democracy would in the future claim for the ordinary citizen the same medical treatment as was given in the Royal palace. He thought the Act would have a profound effect in improving national hygiene.

Dr. **Parsons**, in reply, did not agree that there was any serious dearth of medical students. Medical officers of health could not do the bacteriological work of infirmaries: they employed experts as a rule for their own. With regard to increased work being put on Poor-law infirmaries owing to the diminution of the resources of the general hospitals caused by the Act, he admitted that if such were the case it would undoubtedly add to their work. But the evidence up to the present was not conclusive that hospitals would *suffer to* that extent.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns, with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 8930 births and 3920 deaths were registered during the week ended Saturday, July 12th. The annual rate of mortality in these towns, which had steadily declined from 13·5 to 11·2 per 1000 in the six preceding weeks, rose again to 11·4 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 13·5, against 13·3 per 1000 in London during the same period. Among the several towns the death-rates last week ranged from 3·8 in Ealing, 5·2 in Hastings, 5·4 in Willesden, 5·7 in Gillingham, and 6·0 in Hornsey and in Ilford, to 17·2 in Dudley, Stockport, and Burnley, 18·0 in Swindon, 18·1 in Salford, 18·9 in Stockton-on-Tees, and 19·5 in West Hartlepool.

The 3920 deaths from all causes were 96 more than the number in the previous week, and included 344 which were referred to the principal epidemic diseases, against 306 and 281 in the two preceding weeks. Of these 344 deaths, 155 resulted from infantile diarrhœal diseases, 69 from measles, 55 from whooping-cough, 34 from diphtheria, 17 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·0 per 1000, against 0·9, 0·9, and 0·8 per 1000 in the three preceding weeks. The deaths of infants under two years of age attributed to diarrhœa and enteritis, which had been 90, 105, and 107 in the three preceding weeks, further rose to 155 last week, and included 48 in London and its 14 suburban districts, 20 in Liverpool, 8 in Leeds, 6 in Manchester, and 5 in Stoke-on-Trent. The deaths referred to measles, which had been 87, 81, and 75 in the three preceding weeks, fell to 69 last week; of this number 20 occurred in London and its 14 suburban districts, 8 in Stoke-on-Trent, 8 in Manchester, and 3 each in Dudley, Birmingham, and Salford. The fatal cases of whooping-cough, which had been 77, 68, and 53 in the three preceding weeks, rose to 55 last week; 9 deaths were recorded in London and its 14 suburban districts, 6 in Hull, and 5 each in Birmingham and in Manchester. The deaths attributed to diphtheria, which had been 23, 31, and 24 in the three preceding weeks, rose again to 34 last week, and included 6 in London and its 14 suburban districts, 5 in Birmingham, 3 in Portsmouth, and 2 each in Stockport, Salford, and Hull. The deaths referred to scarlet fever, which had been 22, 15, and 13 in the three preceding weeks, rose again to 17 last week, of which 5 were registered in London and 2 each in Birmingham, Sheffield, and Newport (Mon.). Of the 14 deaths from enteric fever 2 were registered in London, 2 in Liverpool, and 2 in Hull.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had risen from 1418 to 1697 at the end of the four preceding weeks, further rose to 1833 on Saturday last; 315 new cases were admitted during the week, against 273, 286, and 314 in the three preceding weeks. These hospitals also contained on Saturday last 862 cases of diphtheria, 381 of measles, 281 of whooping-cough, and 44 of enteric fever, but not one of small-pox. The 960 deaths from all causes in London were 37 more than the number in the previous week, and were equal to an annual death-rate of 11·1 per 1000. The deaths referred to diseases of the respiratory system, which had been 127, 126, and 106 in the three preceding weeks, were 137 last week, and were 10 more than the number in the corresponding week of last year.

Of the 3920 deaths from all causes in the 96 towns, 166 resulted from various forms of violence and 338 were the subject of coroners' inquests. The causes of 33, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London, West Ham, Portsmouth, Bristol, Stoke-on-Trent, Nottingham, Salford, Bradford, Leeds, and in 67 other smaller towns. The 33 uncertified causes of death last week included 5 in Birmingham, 4 in Liverpool, and 3 each in Manchester and in Burnley.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,259,600 persons at the middle of this year, 1136 births and 591 deaths were registered during the week ended Saturday, July 12th. The annual rate of mortality in these towns, which had been 14·8, 14·9, and 13·7 in the three preceding weeks, further fell to 13·6 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these Scotch towns averaged 16·3, against 13·5 per 1000 in the 96 large English towns. Among the towns the death-rates last week ranged from 5·9 in Falkirk, 8·1 in Hamilton, and 11·5 in Motherwell, to 15·9 in Clydebank, 16·8 in Coatbridge, and 19·8 in Perth.

The 591 deaths from all causes were 4 fewer than the number in the previous week, and included 71 which were referred to the principal epidemic diseases, against 72 and 89 in the two preceding weeks. Of these 71 deaths, 27 resulted from measles, 17 from infantile diarrhœal diseases, 16 from whooping-cough, 7 from diphtheria, and 4 from scarlet fever, but not one from enteric fever or small-pox. *These 71 deaths from the principal epidemic diseases* corresponded to an annual rate of 1·6, against 1·0 per 1000 in the 96 English towns. The deaths attributed to measles, which had been 34, 35, and 38 in the three preceding weeks, were 27 last week, and included 17 in Glasgow, 4 in Dundee, and 4 in Aberdeen. The deaths referred to diarrhœa and enteritis (among children under 2 years), which had been 8, 12, and 21 in the three preceding weeks, fell to 17 last week, and included 8 in Glasgow, 3 in Aberdeen, 2 in Edinburgh, and 2 in Motherwell. The fatal cases of whooping-cough, which had been 22, 15, and 20 in the three preceding weeks, fell to 16 last week, and included 8 in Glasgow, and 2 each in Aberdeen and in Hamilton. The deaths from diphtheria, which had been 7, 4, and 2 in the three preceding weeks, rose to 7 last week; of these 7 deaths, 4 were registered in Glasgow and 2 in Aberdeen. The deaths from scarlet fever, which had been 3, 5, and 7 in the three preceding weeks, fell to 4 last week, and included 2 in Glasgow and 2 in Aberdeen.

The deaths referred to diseases of the respiratory system, which had been 86, 78, and 71 in the three preceding weeks, rose to 79 in the week under notice; 30 deaths resulted from different forms of violence, against 27 and 24 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,199,180 persons at the middle of this year, 548 births and 356 deaths were registered during the week ended Saturday, July 12th. The annual rate of mortality in these towns, which had been 16·5, 16·7, and 16·4 in the three preceding weeks, fell to 15·5 per 1000 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 19·1 per 1000; in the 96 large English towns the corresponding rate did not exceed 13·5, while in the 16 Scotch towns it was equal to 16·3 per 1000. The annual death-rate last week was equal to 19·9 in Dublin (against 11·1 in London and 14·1 in Glasgow), 14·2 in Belfast, 15·6 in Cork, 8·9 in Londonderry, 16·2 in Limerick, and 11·4 in Waterford, while in the remaining 21 smaller towns the mean death-rate was equal to 11·1 per 1000.

The 356 deaths from all causes were 22 below the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 27 and 25 in the two preceding weeks. Of these 36 deaths, 15 resulted from infantile diarrhœal diseases, 7 from scarlet fever, 4 from measles, 4 from diphtheria, 3 from whooping-cough, 2 from enteric fever, and 1 from typhus, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·7 per 1000; in the 96 large English towns the corresponding rate did not exceed 1·0, while in the 16 Scotch towns it averaged 1·6 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 6, 11, and 9 in the three preceding weeks, rose to 15 last week, and included 9 in Dublin and 5 in Belfast. The deaths from scarlet fever, which had been 1, 4, and 3 in the three preceding weeks, rose to 7 last week, and included 4 in Dublin and 3 in Belfast. The deaths from measles, which had been 7, 8, and 5 in the three preceding weeks, fell to 4 last week, and included 2 in Waterford. The 4 deaths from diphtheria, which were slightly above the average in recent weeks, occurred in Dublin, as did also the 3 deaths from whooping-cough, which were slightly below the average. The 2 deaths from enteric fever occurred in Limerick, and the death from typhus in Cork.

The deaths referred to diseases of the respiratory organs, which had been 61, 60, and 54 in the three preceding weeks, were 52 in the week under notice. Of the 356 deaths from all causes, 127, or 35·7 per cent., occurred in public institutions, and 7 resulted from different forms of violence. The causes of 10, or 2·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

VITAL STATISTICS OF LONDON DURING JUNE, 1913.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 5·4 per 1000 of the population, estimated at 4,518,191 persons in the middle of the year; in the two preceding months the rates were 4·6 and 4·8 per 1000 respectively. The lowest rates last month were recorded in Kensington, St. Marylebone, Hampstead, *Holborn, and Wandsworth; and the highest rates in Poplar*, Bermondsey, Lambeth, Battersea, Deptford, and Woolwich. The prevalence of scarlet fever showed a considerable increase last month; this disease was proportionally most prevalent in Hammersmith, Chelsea, Lambeth, Battersea, and Deptford. The Metropolitan Asylums Hospitals contained 1579 scarlet fever patients at the end of last month, against 1436, 1353, and 1414 at the end of the three preceding months; the weekly admissions averaged 232, [illegible] in the two preceding months. Diphtheria [illegible] months. The prevalence of enteric fever showed a slight decline from that recorded in the preceding month; this disease was proportionally most prevalent in Paddington, Fulham, St. Marylebone, Stepney, and Poplar. There were 35 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 34 and 41 at the end of the two preceding months; the weekly admissions averaged 5, against 4 and 7 in the two preceding months. Erysipelas was proportionally most prevalent in Stoke Newington, Finsbury, Shoreditch, Bethnal Green, Stepney, and Southwark. The 27 cases of puerperal fever notified during the month included 4 in Poplar, 3 in Hammersmith, 3 in Hackney, 3 in Stepney, and 2 each in Islington, Finsbury, Bethnal Green, Lambeth, and Wandsworth. The 9 cases of cerebro-spinal meningitis included 3 in Lambeth, 2 in Stepney, and 1 each in Islington, Finsbury, Southwark, and Camberwell. Of the 13 cases of poliomyelitis 8 belonged to Hackney and 2 to St. Pancras, the remaining 3 belonging respectively to Stoke Newington, Finsbury, and Bethnal Green.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the four weeks ending June 28th the deaths of 3837 London residents were registered, equal to an annual rate of 11·1 per 1000; in the three preceding months the rates had been 17·6, 15·3, and 12 9 respectively. The death-rates last month ranged from 7·9 in Lewisham, 8·4 in Wandsworth, 9·1 in Camberwell, 9 3 in Fulham, and 9·4 in Woolwich, to

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1913.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,518,191	—	1018	506	—	50	1	27	252	9	13	1876	5·4	—	105	10	39	62	7	90	313	0·9	3837	11·1
West Districts.																								
Paddington	142,210	—	28	11	—	3	—	1		—	—	50	4·6	—	9	—	1	3	1	2	16	1·5	111	10·1
Kensington	171,284	—	38	8	—	3	—	—	6	—	—	55	4·2	—	2	—	—	—	—	2	4	0·3	138	10·5
Hammersmith	123,745	—	43	9	—	—	—	3	4	—	—	59	6·2	—	4	—	1	—	—	—	5	0·5	102	10·6
Fulham	157,117	—	50	10	—	4	—	—	9	—	—	73	6·1	—	—	—	—	1	—	1	2	0·2	108	9·3
Chelsea	64,598	—	22	4	—	—	—	—	3	—	—	29	5·9	—	—	—	—	—	—	—	—	—	55	10·6
City of Westminster	154,810	—	30	14	—	2	—	—	7	—	—	53	4·5	—	3	1	—	—	1	1	6	0·5	121	10·8
North Districts.																								
St. Marylebone	114,532	—	18	9	—	3	—	1	5	—	—	36	4·1	—	—	—	1	1	—	2	4	0·5	103	11·9
Hampstead	86,346	—	10	11	—	—	—	—	3	—	—	24	3·6	—	2	1	1	—	—	1	5	0·8	64	10·3
St. Pancras	214,330	—	37	25	—	—	—	—	14	—	2	78	4·7	—	3	—	1	2	—	5	11	0·7	217	13·2
Islington	325,585	—	49	50	—	4	—	2	12	1	—	118	4·7	—	11	1	6	10	—	7	35	1·4	306	12·0
Stoke Newington	50,518	—	1	11	—	—	—	—	4	—	1	17	4·4	—	1	—	—	3	—	—	4	1·0	48	11·8
Hackney	223,353	—	34	21	—	2	—	3	11	—	8	79	4·6	—	5	—	1	1	1	8	16	0·9	181	10·7
Central Districts.																								
Holborn	46,949	—	6	6	—	—	—	—	1	—	—	13	3·6	—	—	—	—	—	—	1	1	0·3	45	12·5
Finsbury	84,679	—	16	10	—	—	—	2	8	1	1	38	5·8	—	—	—	1	2	—	4	7	1·1	98	14·9
City of London	17,916	—	5	—	—	—	—	—	1	—	—	6	4·4	—	—	—	—	1	—	—	1	0·7	23	17·4
East Districts.																								
Shoreditch	109,654	—	20	17	—	1	—	—	9	—	—	47	5·6	—	—	—	1	1	—	4	6	0·7	101	12·4
Bethnal Green	127,824	—	24	16	—	1	—	2	15	—	1	59	6·0	—	—	—	3	—	1	1	5	0·5	108	11·4
Stepney	275,300	—	48	31	—	13	—	3	21	2	—	118	5·6	—	4	—	2	2	1	17	26	1·2	263	13·0
Poplar	160,913	—	52	28	—	3	—	4	9	—	—	96	7·8	—	9	2	2	4	1	3	21	1·7	158	12·7
South Districts.																								
Southwark	188,487	—	41	14	—	2	—	—	19	1	—	77	5·3	—	7	1	—	3	1	6	18	1·2	201	14·0
Bermondsey	124,739	—	39	23	—	—	—	—	6	—	—	68	7·1	—	12	—	—	7	—	3	22	2·3	133	13·9
Lambeth	297,139	—	109	28	—	1	—	2	13	3	—	156	6·8	—	6	—	2	3	—	5	16	0·7	243	10·5
Battersea	167,464	—	67	14	—	—	—	—	7	—	—	88	6·8	—	1	—	2	2	—	5	10	0·8	129	10·1
Wandsworth	330,395	—	57	27	—	3	1	2	13	—	—	103	4·1	—	5	2	—	3	—	5	15	0·6	214	8·4
Camberwell	261,805	—	48	22	—	1	—	1	16	1	—	89	4·4	—	2	—	1	7	—	4	14	0·7	185	9·1
Deptford	109,280	—	42	21	—	—	—	—	8	—	—	71	8·5	—	10	—	1	1	—	—	12	1·4	98	11·6
Greenwich	96,015	—	19	20	—	—	—	1	7	—	—	47	6·4	—	6	—	3	3	—	—	12	1·6	95	12·7
Lewisham...	168,822	—	30	20	—	3	—	—	8	—	—	61	4·7	—	2	—	4	2	—	2	10	0·8	103	7·9
Woolwich	122,382	—	35	26	—	1	—	—	6	—	—	68	7·2	—	1	2	5	—	—	1	9	1·0	86	9·4
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

13 0 in Stepney, 13 2 in St Pancras, 13 9 in Bermondsey, 14 0 in Southwark, 14 9 in Finsbury, and 17 4 in the City of London The 3837 deaths from all causes included 313 which were referred to the principal infectious diseases, of these, 105 resulted from measles 10 from scarlet fever, 39 *from diphtheria, 62 from whooping cough, 7 from enteric* fever, and 90 from diarrhœa and enteritis among children under two years of age No death from any of these diseases was recorded last month in Chelsea, among the other boroughs they caused the lowest death rates in Kensington, Hammersmith, Fulham, the City of Westminster, St Marylebone, Holborn, and Bethnal Green, and the highest rates in Paddington, Islington, Poplar, Bermondsey, Deptford, and Greenwich The 105 deaths from measles were 43 below the corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal last month in Paddington, Poplar, Bermondsey, Deptford, and Greenwich The 10 fatal cases of scarlet fever were 12 below the corrected average number, and included 2 in Poplar, 2 in Wandsworth, and 2 in Woolwich The 39 deaths from diphtheria showed an increase of 11 over the corrected average, the greatest proportional mortality from this disease was recorded in Islington, Bethnal Green, Greenwich, Lewisham, and Woolwich The 62 fatal cases of whooping-cough were 13 below the corrected average number, this disease was proportionally most fatal in Islington, Stoke Newington, Poplar, Bermondsey, Camberwell, and Greenwich The 7 *deaths from enteric fever agreed with the corrected* average number, 1 death each belonged to Paddington, the City of Westminster, Hackney, Bethnal Green, Stepney, Poplar, and Southwark The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in Hackney, Finsbury, Shoreditch, Stepney, Southwark, and Battersea In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 20 4 per cent below the average

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

THE following appointments have been notified —Surgeons G T Berry to the *Victory*, for Haslar Hospital, temporary, F H Stephens to the *Vivid*, additional, for disposal, R J G Parnell to the *Pembroke*, additional, for Chatham Hospital, and G B Scott to the *Pembroke* additional, for disposal

ROYAL ARMY MEDICAL CORPS

Colonel R J Geddes, D S O, has been appointed Assistant Director of Medical Services to the Devonport District and to the South Western Coast Defences

Lieutenant Colonel R Caldwell has been appointed to the Southern Command Lieutenant Colonel C C Reilly has been transferred from Bombay to Darjeeling Cantonment Lieutenant-Colonel J Thomson has been appointed officer in charge of the Record Office, Royal Army Medical Corps Depot, Aldershot Lieutenant-Colonel H J Pocock has taken up duty in charge of the Military Hospital and Cantonment Dispensary at Campbellpore Cantonment Lieutenant Colonel M W Russell, Deputy Assistant Director of Medical Services to the Eastern Command, has been placed under orders for service abroad Lieutenant-Colonel J S Green has been appointed to hold charge of the Military Hospital at Fermoy *Lieutenant Colonel J Fallon* has taken up duty at Lahore Cantonment as Senior Medical Officer

Major A O B Wroughton has been placed under orders for a tour of foreign service Major G Dansey-Browning has joined for duty at Gibraltar Major W A Ward has been transferred from Salisbury Plain to the London District Major W A S J Graham has been permitted an extension of his tour of service in India for one year Major S J C P Perry has *been transferred from the Military Hospital* at Colaba to Deolali Cantonment Major E Brodribb has left Dover for a tour of service at Malta Major A H Safford has been transferred from the Lucknow Division to Naini Tal Major G J A Ormsby has been appointed to hold charge of the Military Hospital at Landour Cantonment Major H S Thurston has been appointed to the Dublin District Major W R P Goodwin has taken over charge of the Military Hospital at Cawnpore Cantonment Major A H O Young has left Strensall for a tour of duty at Jullundur Cantonment Major J W Leake has been appointed to the Military Hospital at Dover Major G *Mansfield* has been granted leave of absence from duty for one month Major H K Palmer has been transferred from the Aden Brigade to the Mhow Division of the Southern Army in India Major J Poe has been appointed to the Eastern Command Major H A Hinge has taken up duty at the Cambridge Hospital, Aldershot

Captain A Dawson has been appointed to the Dublin District Captain P S Tomlinson, serving in India, has been granted three months' leave of absence Captain D F McKenzie has been permitted an extension of Indian tour of service for one year Captain C T Edwards has been appointed to the Southern Command on return from Peshawar Captain A M Rose has been transferred from Aldershot to Bordon Captain V C Honeybourne has been appointed to the Belfast District Captain J du P Langrishe has been granted three months leave of absence home from India, with permission to revert to the Home Establishment on expiration of leave Captain H T Stack has been transferred from Bareilly Cantonment to Ranikhet Captain J McKenzie has taken up duty at Pirbright Captain J De la Cour has taken up duty in the Dublin District Captain C H Denyer has left Agra for Landour Cantonment, Mussooree Hills District Captain *J James has joined the Military Hospital* at Chatham Captain M White has been transferred from the Military Hospital at Allahabad Cantonment to Shwebo, Burma Captain F A H Clarke has been appointed to the Military Hospital at Multan Cantonment Captain E W M Paine has been transferred from the Military Hospital at Bury to Monmouth Captain J B Grogan has been appointed Senior Medical Officer at Larkhill Camp, Salisbury Plain Captain *E D Caddell* has taken up duty at Aden as Staff Surgeon Captain M D Ahern has been appointed to hold Charge of the Military Hospital at Watford, Bermuda Captain A N Fraser has taken up duty as Specialist Sanitary Officer in the Straits Settlements [illegible] Captain P A Lloyd Jones has [illegible] in Ophthalmology at the Cam[illegible] Captain A L Otway has been [illegible] to Portsmouth Captain H T Wilson has taken up duty at the Military Hospital, Maidstone Captain C J Wyatt has embarked for a tour of service in the Sierra Leone Protectorate Captain H Stewart has arrived home for duty from India

Lieutenant J D Bowie has taken up duty at the Military Hospital, Cairo Lieutenant G Wilson has been appointed to the Secunderabad Division of the Southern Army in India Lieutenant W Bisset has joined the Military Hospital at Rawal Pindi Cantonment Lieutenant J D Kidd has been appointed to the Military Hospital at Secunderabad Cantonment to undergo a course of instruction in Indian sanitation and hygiene Lieutenant T A Weston has left the Aldershot Command for a tour of service in India Lieutenant P M J Brett has been transferred from the Military Hospital at Cosham to Jhansi Cantonment Lieutenant T E Osmond has been placed in medical charge of troops at Kensington Lieutenant R C Carlyle has been appointed for duty in the London District Lieutenant W A Frost has been placed under orders for a tour of service in India Lieutenant R F Bridges has been transferred from Peshawar to Cherat Cantonment Lieutenant H J G Wells has taken over medical charge at Poeghane Camp Lieutenant A G Biggam has been appointed to the Military Hospital at York

INDIAN MEDICAL SERVICE

Colonel P Hehir Assistant Director of Medical Services to the Burma Division, has arrived home on six months leave of absence from India

Lieutenant Colonel V G Drake Brockman has been appointed Residency Surgeon at Mewar Lieutenant Colonel J Garvie has been granted three months' privilege leave of absence Lieutenant Colonel J Jackson has arrived home on leave of absence from India

Major T Hunter has arrived home on leave of absence from India. Major C S Lowson has been appointed Superintendent of the Central Prison at Yarravda, Bombay, in faced with the absolute necessity of increasing hospital facilities and improving hospital practice. It is practically impossible for the general practitioner adequately to deal with either disease. How these facilities for treatment and teaching can be provided would be the first question facing a Commission.

The next question, not less important, is how to get people to avail themselves of the means provided. Are we to compel them, or are we to invite them? Will compulsion be practicable where there is so great a volume of disease—perhaps 1500 fresh cases a day? Will public opinion support the enforcement of such regulations? Will compulsion do more good by driving patients to be cured, or more harm by driving them to concealment? These are difficult questions.

Again, what methods must the State adopt in order to save its rising manhood and womanhood from the evils that have tainted the lives of the passing generation? Some means must be devised of forewarning young men and women of the dangers that will certainly beset them; instructing them on the practical value of continence; inculcating the urgency of early treatment of disease. Knowledge of facts will not of itself prevent the acquisition of disease; but without some instruction as to facts the average young man hardly has a chance of avoiding it. Yet again, such a Commission would have to face the problem of venereal quackery. Treatment of such patients by unqualified persons is manifestly contrary to the public (and private) well-being; yet now such treatment is the rule rather than the exception. It is, however, impossible to proscribe venereal quackery unless there is first established some adequate system of professional treatment to take its place.

The difficulties to be faced are great, but the importance of facing them is greater still. Look at it from whatever standpoint you may—medical, sociological, economic—no problem can be found which calls more loudly for solution. A Royal Commission would provide us with instruction on the facts, and guidance as to possible remedies.

I am, Sir, yours faithfully,

July 15th, 1913. DOUGLAS WHITE.

POOR-LAW INFIRMARIES AND THE TREATMENT OF SYPHILIS.

To the Editor of THE LANCET.

SIR,—I notice in THE LANCET of June 28th that Sir Malcolm Morris in his plea for the appointment of a Royal Commission to inquire into venereal diseases suggests that no special facilities exist in Poor-law infirmaries for the treatment of this class of case and that "no use whatever is made of salvarsan, no doubt on account of the cost."

Surely many Poor-law infirmaries make use of this treatment. In this infirmary not only are cases of primary and secondary syphilis treated in special wards, but also every case which is considered suitable is given one or more doses of salvarsan; further, cases which come under the notice of the district medical officers are all recommended for admission with a view to treatment; the number of cases is nevertheless small. Prior to the introduction of salvarsan treatment all cases of syphilis with severe symptoms were transferred to the Lock Hospital, for which the guardians paid a guinea per week for the maintenance of each case. That the question of cost does not in any way affect the treatment of patients can be well illustrated in that in the last two cases of tetanus admitted the serum used cost about £7 for each patient.

I am, Sir, yours faithfully,

Lambeth Infirmary, S.E., July 9th, 1913. A. LIONEL BALY.

A CASE OF ANKYLOSTOMIASIS IN BIRMINGHAM.

To the Editor of THE LANCET.

SIR,—Perhaps I may be allowed to report the sequel to my case published in THE LANCET of May 3rd of the present year (p. 1223). I am at last able to report that the stools of the patient are free from ova and embryos. Since April, when, as I stated, I had resumed the thymol treatment, he has had four courses of 120 grs. each time, administered after the method recommended by Dock and Bass (see my former paper). He has not borne them very well, and in consequence the interval, which was formerly a fortnight, has been prolonged to three weeks or a month. His general health is now good. He has had no head attack since that mentioned in my paper as having occurred in March, unless we reckon a slight one at the end of May, which he said was "not like the old attacks."

I am, Sir, yours faithfully,

Birmingham, July 15th, 1913. ROBERT SAUNDBY.

BREAST FEEDING.

To the Editor of THE LANCET.

SIR,—With reference to the series of articles in THE LANCET of June 14th, I admit the justice of Dr. Forsyth's criticism on the variability in the supply of breast milk as illustrated by the test-feed, and I think he is right in pointing out that we cannot justly estimate the daily quantity of milk by multiplying a single feed by the number of feeding times. I also agree with Dr. Cran that it is not necessary to employ the test-feed in the case of a normal infant whose weekly weighings show a satisfactory curve. I have employed the test-feed at my infant consultations during the last six years, and I find it of great practical value in certain cases. For instance, when a child is said to be satisfied with the breast and is losing weight, I have repeatedly found that the child obtained no milk at all. I fail to see how we are to demonstrate this fact to an incredulous mother in any other way except by means of the test-feed.

Then, again, in cases where supplementary feeds of cow's milk are given I find it most advantageous to have some idea as to the quantity which the child obtains from the breast before ordering cow's milk. The numerous cases of vomiting and diarrhœa that I have seen in which the officially recognised quantities have been ordered by nurses and also medical men, without previously ascertaining even the proximate amount which nature was supplying, have impressed on me the importance of giving, at any rate at first, such a dosage of cow's milk that it will not exceed the quantity which the infant has been accustomed to receive. I constantly find that a child 3 months old obtains 1½ ounces from the breast regularly at every weekly test-feed. Some of these infants increase in weight satisfactorily without any supplementary food and are satisfied, whilst others begin to lose ground. In these latter cases I give supplementary feeds of 1 ounce of undilute citrated cow's milk immediately after the breast feeds. Th results are excellent. The mother can continue to feed he child on this combined method for months. It occasionall happens in these cases that the test-feed shows that th breast milk is increasing in quantity, and we are then abl to dispense with the supplementary feeds. The economi saving of this method is greatly appreciated by the poor. therefore maintain that the single test-feed is of educational value to the practitioner and enables the mother t keep her child at the breast for the longest possible period.

I am, Sir, yours faithfully,

Kensington, July 12th, 1913. RONALD CARTER.

THE CORRELATION OF BIRTH-RATES AND DEATH-RATES.

To the Editor of THE LANCET.

SIR,—The annual reports for 1912 of the medical officers of health are now appearing. They show that wherever there is a fall in the birth-rate there is almost invariably a fall in the death-rate. They also show that districts with high birth-rates generally have high death-rates, and that districts with low birth-rates generally have low death-rates. In fact, they seem completely to justify the Malthusian contention that the death-rates are still controlled by the birth-rates, and that so long as a death-rate is above the normal (about 10 per 1000 per annum as in New Zealand) the only way to lower it is to lower the birth-rate—in other words, to encourage a stricter observance of the law of parental responsibility which is the basis of an individualist State. Medical officers of health never draw attention to the close correlation between natality and mortality, but refer the excessive death-rates in their poor districts to bad sanitation, overcrowding, mysterious outbreaks of measles, &c. Is it possible that they are unaware of this close correlation?

I am, Sir, yours faithfully,

BINNIE DUNLOP, M.B., Ch.B. Glasg.

Alexandra Court, S.W., July 12th, 1913.

THE MEDICO-PSYCHOLOGICAL CLINIC.

To the Editor of THE LANCET.

SIR,—I am instructed by the medical committee of the proposed Medico-Psychological Clinic to inform you that the notice which appeared in the *Observer* of July 13th, giving a report of a private meeting held in connexion with the proposed clinic and asking for subscriptions to the same, was not inserted either with the knowledge or sanction of the committee, and the committee wish it understood that when details of the scheme they have in hand are ready for publication these details will be given in the first instance to THE LANCET and to the *British Medical Journal*, and not to any non-professional papers. They regret that this notice has got into the lay press before the medical press had been communicated with.

I am, Sir, yours faithfully,
J. TURNER, Hon. Secretary.

Endsleigh street, W.C., July 14th, 1913.

THE LADIES' PLATE AT HENLEY REGATTA.

To the Editor of THE LANCET.

SIR,—Justifiable exceptions have been taken by fathers whose sons are at public schools (Eton perhaps excepted, on account of their special advantages) to the fact that the boys are allowed to compete on equal terms for the Ladies' Plate at Henley Regatta with College eights who are years older and much more developed. Such efforts must be injurious to the growing lad on physical grounds. When consulted by parents on this subject I invariably advise them not to allow their boys to compete in such an unequal contest.

I am, Sir, yours faithfully,
SHEPHERD BOYD.

Harrogate, July 11th, 1913.

MEMORIAL TO THE LATE DR. GEORGE ALEXANDER GIBSON.

To the Editor of THE LANCET.

SIR,—Friends of the late Dr. George Alexander Gibson will be pleased to learn that the recent appeal for a fund to [illegible]" has already met [illegible] ve intimated that they wish to join the general committee of the Memorial Fund will be convened some time in October. After this the subscription list will be closed, and a copy, together with the resolutions of the general committee, will be sent to each subscriber.

In case there may be any of the late Dr. Gibson's friends who did not receive an intimation and who might desire to subscribe, I may add that the honorary treasurer of the Memorial Fund is Mr. A. Gray Muir, W.S., 19, York-place, Edinburgh.—I am, Sir, yours faithfully,

GEORGE A. BERRY,
Convener of the Executive Committee.

31, Drumsheugh-gardens, Edinburgh, July 9th, 1913.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—You were good enough to publish in your issue of July 5th an article in which I described the remarkable travels of a cæcum. May I point out that my skiagram was printed upside down and so presented the unfortunate viscus cutting Father William-like capers on its head, the one vagary of which it was actually not guilty.

I am, Sir, yours faithfully,
IVOR BACK.

Wimpole-street, W., July 7th, 1913.

THE LYMPHATICS OF THE LARGE INTESTINE.

To the Editor of THE LANCET.

SIR,—We notice that in the Cavendish lecture lately delivered by Sir Berkeley Moynihan and published in THE LANCET of July 5th, it is assumed that all or almost all the investigations on the lymphatics of the large intestine were carried out on the fœtus. In the paragraph dealing with the lymphatics accompanying the middle colic artery the words "In the fœtuses examined by Jamieson and Dobson" give the impression that we used this kind of material only.

May we draw attention to a statement in the opening paragraph of our paper in the Annals of Surgery, to which reference is made in the lecture: "Our material was drawn from subjects of all ages—chiefly children and young adults—as, except in the case of the appendix, fœtal specimens are not very satisfactory."

Of the 25 specimens of cæcum and appendix examined, 12 were fœtal, and the age of the oldest subject was 61 years; of the 23 specimens of colon, 3 were fœtal, and the age of the oldest subject was 54.

We are, Sir, yours faithfully,
J. KAY JAMIESON,
J. F. DOBSON.

Leeds, July 9th, 1913.

A MEDICAL TRADE UNION.

To the Editor of THE LANCET.

SIR,—The National Medical Guild, a trade union for medical practitioners with branches in all parts of the United Kingdom, will open temporary offices at 13, Old Steine, Brighton, from July 18th to 26th next. An official of the Guild will be in attendance to explain the principles of trade union organisation as they affect the profession. There will be accommodation for such members of the Guild as may desire to hold small informal meetings.

I am, Sir, yours faithfully,
PERCY C. RAIMENT, General Secretary.

34, Villiers street, Strand, W.C., July 15th, 1913.

THE NEED FOR RESEARCH IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Your leading article on the Need for Research in Tuberculosis (May 10th) is most timely. The worst of the present state is that on such guesswork and conjecture as [illegible] as Dr. Ewart puts it, [illegible] to interference with [illegible] pain are based, the sufferers being lumped together as infective, whether trained (i.e., against scattering bacilli) or ignorant. And let it not be forgotten it is a pretty large minority whose freedom the campaigners are narrowing.

We medical readers know how to take medical writings and their contradictions, and we make allowances for the cocksureness of certain doctors, but the public cannot discriminate. They are given peptonised headlines by the antituberculosis pundits; they will be told the spray of an apparently healthy but really tuberculous person, in the mere act of speaking, will carry hundreds of bacilli 10 feet, possibly straight into the listener's lung; and they will be confidently assured that "the only way we can prevent spray infection is by keeping people in acute infective states isolated .. .. making them stop at home." But nothing is said of the recent testing, with negative results, of the telephones used by consumptives. There is more *éclat* in the physiologist's picture. *It has thus come about* that the popular attitude (thanks to the military sternness of the campaigners—destroy your enemy wherever you find him, and as soon as possible) towards the consumptive, which used to be one of kindness, pity, and sympathy, is now one of coldness and abhorrence, verging on the lethal chamber. A person with a cough is scowled at, the appearance of a spitting-bottle would disperse a meeting, a hostess will hesitate about asking a trained consumptive to tea, and the hotel manager boldly advertises "No consumptives," [illegible] built although in pa [illegible] ore, up with cons [illegible] by against false [illegible] on associations an [illegible] by all points and [illegible] modern methods are required before social restrictions and unnecessary pain are inflicted on the sensitive and harassed consumptive, who is suffering from no fault of his own, and who has contributed largely to the world's mental possessions, while the syphilitics and gonorrhœals are flourishing and multiplying without interference.

I am, Sir, yours faithfully,
RALLENTANDO.

July 5th, 1913.

members of its medical faculty, Dr. Lewellys Barker and Dr. T. S. Cullen, both Canadians. The President was Dr. H. MACCALLUM, a teacher at the London Medical School and consulting physician, highly respected not only locally but throughout Canada, both by the profession and the public. Of the sections held on the first day that on Public Health, presided over by Dr. HELEN MACMURCHY (Toronto) was the most generally important and interesting.

A report of a special committee on

Medical Inspection of Schools,

by Dr. JOHN STEWART (Halifax), who had gone to Edinburgh to receive the LL.D. degree from his alma mater, was read in his absence by Dr. FIDLAR, of the London Institute of Public Health. Dr. Stewart first reviewed the work done in all the provinces, and referred to the sympathetic interest of the Hon. Dr. Pyne in Ontario. Medical inspection of school children in Canada he considered as yet in an elementary stage. There had been progress in the cities owing to the efforts of the few, but there was still apathy in the smaller places, and this would continue until a national standard could be evolved. A national public health service was therefore needed to deal with such questions as immigration, sanitation of factories, control of disease, adulteration of food, as well as with medical inspection of schools.

Dr. HALPENNY (Winnipeg), in discussing the question whether medical inspection of school children should be under the control of the education authorities or of the Board of Health, said that he had seen the working of both systems—of the first in Great Britain and of the last in the United States. On the whole, he was in favour of the British system, because politics dominate health departments much more than they do education boards in the United States and in Canada. He thought, however, that the conditions prevailing in Canada supplied the strongest argument for the establishment of a federal bureau of health, for under such a board local politics could not rule.

Dr. ADAMI agreed that in the existing state of affairs the education authorities were better fitted to cope with the situation successfully. He also urged earnest coöperation between school boards and boards of health.—A committee was appointed, consisting of Dr. Halpenny (Winnipeg), Dr. Hutchinson (Westmount), and Dr. Park (Edmonton), to deal with the question of a federal health board, the jurisdiction of health officers over separate schools, and with other matters which had been raised during the discussion.

Venereal Diseases.

Dr. H. W. HILL (medical officer of health of London) read a paper in which he compared syphilis to typhoid fever, and declared that if it was criminal for a city to allow its citizens to drink polluted water it was far more criminal to allow venereal diseases to spread, destroying the race, and blasting future generations.

Dr. ADAMI advised that the moral aspect of the matter should be ignored and that the profession should confine themselves solely to the physical standpoint, not because the profession was not heartily in accord with the view of the moralists, but because the outlook of the profession was purely physical.[1]

Dr. F. A. CLARKSON (Toronto) read a paper advocating the establishment of segregated areas and medical inspection as a means for checking the spread of venereal disease.

Dr. E. WODEHOUSE (Port Arthur) said that in Fort William there was a segregated area, and that whilst this system had been in existence it appeared to have prevented the spread of venereal disease.

Dr. HALPENNY did not believe that the establishment of segregated areas was of any avail in controlling the spread of such diseases. He thought that shop and factory girls were the main factors in disseminating infection. Prostitutes were, as a rule, careful to avoid disease, which interfered with their living. He held the opinion that segregation was, and always must be, a hopeless failure, but suggested that hospitals and gaols be required to report on all cases of venereal disease coming under their notice.

Dr. ADAMI emphasised the necessity for obtaining statistics before any opinion as to the prevalence of venereal disease could be formed. A committee was appointed to deal with the subject and report thereon.

Reports of Committees on Medical Inspection of School Children and on Venereal Diseases.

Reports of the committee on medical inspection of school children and on venereal diseases were handed in on June 25th. The chief recommendation made in the first report was that for the present the inspection of children should be made by an appointee of the school board, working in conjunction with the medical officer of health. The matter was finally deferred until the meeting of next year, though the general sentiment of the committee was undoubtedly in favour of leaving such inspection under the control of the educational authorities.

Professor HARRIS presented the report of the committee on venereal disease, in which it was recommended that provincial boards of health should be requested to make venereal disease notifiable. While doubt was expressed as to the probable success of the plan, it was felt that, as in the case of tuberculosis, a commencement had to be made at some time or another to induce States and municipalities to take effective measures against venereal diseases.

The first general meeting was held on June 24th. After an address of welcome by the Mayor of London and the appointment of the executive committee, Dr. J. ALEXANDER HUTCHISON (Montreal) delivered the

Address in Surgery.

Dr. Hutchison gave a lucid review of the present-day treatment of fractures, illustrating special points by examples drawn from his own experience during many years' service at the Montreal General Hospital, whic owing to its situation in the heart of the poor di trict of Montreal and to Montreal being a large seapor obtained more material than any hospital of Canad He urged that the Canadian Medical Association shou endeavour to have defined by law the status of medic men in relation to suits for malpractice, pointing o that since radiography had been introduced skiagrap of fractures were made use of frequently in lawsuits, usual to the detriment of the medical profession. No layman lawyer, he said, was competent to say whether a skiagra was a true picture of the existing conditions. They did n know the pathological aspect of the case. Experts alo should decide. Dr. Hutchison eulogised the recent repo of the British Medical Association's Commission on Fra tures, and remarked that a report on the same subject, pa of which had just been published in the United States, ba fair to throw further light on this question.

Address in Gynæcology.

This address was delivered by Dr. T. S. CULLEN, o Johns Hopkins University, Baltimore. The addre was an eloquent and earnest plea for the campaign now being waged in the United States against cancer. A wide dissemination of the modes of recognition of the earl symptoms of cancer, especially in women, by means of the public press and by popular literature is being undertaken at the instance of an influential section of the medical profession of the United States. Dr. Cullen pointed out that cancer was neither a blood disease nor incurable The knife would effectually remove a cancerous growth if the disease were dealt with sufficiently early, but, mostly from ignorance, little notice was taken of early symptoms. He described the ways devised to educate the public of the United States in the early detection of the disease. At the Congress of Clinical Surgeons of North America in New York last autumn it was decided that the public, and particularly women, would be best reached through the press and the magazines After due consideration it had been concluded that a lay writer thoroughly informed as to the main facts would be better able than a medical writer to put the matter clearly before the community. Proprietors and editors of the principal newspapers and magazines had willingly coöperated According to Dr. Cullen the results of such articles had been highly satisfactory. Medical men from all parts of the country had reported that large numbers of men and women had been influenced by the popular press and magazine propaganda to seek early medical advice He urged that if the women could be induced to appreciate the necessity for an early recognition of cancer the men would readily follow suit. The diagnosis of variously situated cancers was discussed, and the great difficulty of diagnosing gastric cancer without an exploratory operation was emphasised. He urged the wisdom of removing all breast nodules for immediate microscopical examination. He remarked upon the dearth of well-trained skilful surgical pathologists, giving as a reason their inadequate payment. Every hospital should have a surgical pathologist on its staff. The great surgeon of the future would also be a great pathologist. Dr. Cullen deprecated the lack of business methods prevalent in hospitals. He advocated a campaign against cancer in Canada on the lines of that in the United States.

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[1] [illegible]

London, Ontario.

(To be continued.)

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Medical Inspection of the Port of Bristol.

IN the annual report of the medical officer of health for the port of Bristol attention is drawn to the inadequacy of the provision for efficient inspection. The steam launch *Luath*, which did the work for 19 years, became unfit for use in 1912, and it has been necessary to make shift with tugs since that time; but under such conditions adequate patrol work is impossible, and a launch larger and more powerful than the *Luath* is badly needed. It is pointed out that infection of the port, which would cost the city a very large sum indeed, can only be prevented by a thorough patrolling of the Bristol Channel; and that this calls for the appointment of a whole-time port medical officer with an assistant, and a double crew with a relief crew, at an outlay not exceeding £650 year. The present cost of inspection barely exceeds £100 per annum; but this is based on the conditions of thirty years ago, since when the work of the port has increased and widened enormously. Figures are given which show that much ampler provision is made at other British ports, and it is to be hoped that Bristol will cease to follow the "penny wise and pound foolish" policy which lays her open to such risks.

Winsley Sanatorium.

At the annual meeting of this sanatorium the report was adopted. An interesting discussion arose in regard to the selection of patients for admission to the sanatorium. In former times this was carried out only on the recommendation of two persons—the practitioner in charge of the case and a member of the voluntary "consultative board." When the National Insurance Act first came into operation, the consultative board felt unable to do gratuitous work for State-supported patients, and consequently some unsuitable cases gained access to the sanatorium, since there was no "second opinion" to make a selection. It is claimed, however, that the opinion of the tuberculosis officer, who is now called upon to judge of the merits of each application for sanatorium treatment under the Act, is of even more expert value than that of the consultative board, and that therefore the sanatorium is quite properly safeguarded against unsuitable admissions. At the meeting the medical men present expressed satisfaction with the present arrangements for admission, so that for good or ill those arrangements will now be in the hands of the tuberculosis officers of the neighbouring districts.

Bristol General Hospital: Presentations.

Many old Bristol students will hear with interest of the retirement from active service of two sisters who have been familiar figures at the general hospital for many years. Miss Bailey, better known as Sister Thomas, and Miss Dale as Sister Fry, held these posts for 25 and 20 years respectively, and received presentations at a meeting held at the hospital.

Death of Mr. Joseph Storrs Fry.

In the death of Mr. Joseph Storrs Fry at the age of 87 Bristol loses not only her most conspicuous and beloved citizen, but also the most experienced and distinguished of her hospital administrators. He became a member of the committee of the General Hospital in 1887; in 1892 he became chairman, and from 1903 till his death was president of the institution. From 1892 onwards he was also treasurer. His contributions to the funds were many and liberal, and a male surgical ward bears his name. It was not, however, in such material ways that his beneficent influence was mainly felt. He was a man of the deepest religious convictions, and he believed above all things in thorough performance of all public duties, so that he gave to the hospital unsparingly of his time, energies, and remarkable business abilities. The prestige of the hospital was very largely founded during his long connexion with it. It is hard to realise that his familiar figure will no longer be seen in the corridors. At his funeral service at the Friends' Meeting House in Rosemary-street, and at the memorial services held at the Cathedral and at the General Hospital, the committee and the staff were represented.

Hunterian Professorships for Bristol Surgeons.

At a recent meeting the Council of the University of Bristol tendered its congratulations to two of the teaching staff of the Faculty of Medicine, Mr. E. W. Hey Groves, surgeon to the General Hospital, and Mr. A. Rendle Short, assistant surgeon to the Royal Infirmary, on their appointment to Hunterian professorships of the Royal College of Surgeons of England. Professor F. H. Edgeworth was also congratulated on the invitation which he has received to lecture in the University of London.

Barnstaple Board of Guardians and the Ilfracombe District.

At the last meeting of the Barnstaple board of guardians it was reported that the account of Mr. A. Osborne, who is acting as medical officer for the Ilfracombe district until a permanent appointment is made, amounted to £81. It is now some months since the district medical officership for Ilfracombe has been vacant, as already mentioned in THE LANCET, and it will continue to be so until the guardians offer an adequate remuneration; had they done so in the first instance the present unsatisfactory situation would have been avoided.

The late Mr. G. F. Maberly, M.R.C.S.

Mr. George Frederick Maberly died recently at his residence at Burnham, Somerset. He received his medical education at St. Bartholomew's Hospital, and qualified M.R.C.S. in 1866. Mr. Maberly, who was in his ninetieth year, had retired from active medical work for many years. He was a devoted worker and speaker amongst the sect known as the "Brethren," and was very generous towards the members. He took an active part in all local matters at Burnham. Mr. Maberly was deeply interested in all oriental matters, and was one of the best Hebrew scholars in the West of England. He was much esteemed in the neighbourhood, and his interesting personality will be much missed there.

Gloucestershire Insurance Committee and Tuberculosis.

At the last meeting of the Gloucestershire Insurance Committee it was reported that up to the present time no suitable case either of "dependent or insured" who suffered from pulmonary tuberculosis had been refused admission to a sanatorium

New Isolation Hospital in Somerset.

At the last meeting of the Somerset county council it was decided to apply to the Local Government Board for sanction to borrow £11,000 for the purpose of the erection of a new isolation hospital at Frome.

Tuberculosis Medical Officer for Plymouth.

At a special meeting of the Plymouth sanitary committee held on July 4th it was decided to recommend the Plymouth borough council to erect a dispensary for the treatment of tuberculosis, and to appoint a whole-time tuberculosis medical officer at a salary of £500 per annum.

Torbay Hospital, Torquay.

The new X ray department which is being added to the Torbay Hospital will shortly be opened. It will be under the direction of Dr. R. Allan Bennett, who is the honorary medical officer in charge of the electrical department of the institution.

July 15th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Home for Epileptics, Maghull.

THIS institution has accommodation for311 patients, 169 male, 142 female. The prominent feature of the home is the treatment by provision of healthy and interesting work and occupation as far as possible in the open-air; patients receive training both in work and in play with excellent results. During the past year the total mortality from all causes was 2·28 per cent., the mortality from actual fits was only 1·1 per cent. Twenty-four cases had no fits during the year, and in many cases the number of fits had markedly diminished. At the recent annual meeting a new home was opened for patients of the working class and as a residence for the nursing staff. The money was given to the amount of £3000 by a grant from the estate of the late Sir Alfred L. Jones, after whom the home has been named. A still further enlargement is to be made, the late Thomas Bartlett having left £2000 to build another block for male patients.

The Abattoir Question.

The city council have again considered the site for a new abattoir. It may be remembered that at present the abattoir and associated trades are in the centre of the city close to the University, the Royal Infirmary, and the Brownlow Hill Workhouse, and that the district is a crowded business area. The medical profession protested against renewing the lease about 20 years ago, and medical opinion has continued to condemn the site as prejudicial to the health of the community, but vested interests and the difficulty of providing another site which will meet all requirements have so far prevailed over health considerations, and the much-needed removal of a crying evil is put off to the Greek Kalends. After considering the city surveyor's report on the Pumpfields proposed site, the council gave power to a committee to enter into negotiations for the purchase of what is known as the Love Lane site, which was decided against last year. The members of the Liverpool Meat Market, Limited, have already had a meeting and protested against all action on the part of the city council until the various sections of the trade have been consulted. So the thing drags on.

July 15th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Graduation Ceremonial at Edinburgh University.

IN the McEwan Hall on July 11th, Principal Sir William Turner, Vice Chancellor of the University of Edinburgh, conferred 62 degrees of Doctor of Medicine, 3 degrees of Master of Surgery, 98 degrees of Bachelor of Medicine and Bachelor of Surgery, 1 degree of Doctor of Philosophy, 3 degrees of Doctor of Science, 19 degrees of Master of Arts, and 25 degrees of Bachelor of Science. The Vice-Chancellor was supported by the Senatus, and the candidates for degrees were presented as follows:—Medicine: Professor A. Robinson and Professor H. B. Littlejohn. Arts: Professor Lodge. Science: Professor Geikie. Various diplomas were also awarded, and a number of scholarships and prizes were intimated An organ recital was given by Mr. T. H. Collinson, organist to the University. Professor Robinson, at the close of the ceremony, delivered the customary address, in the course of which he said that for many years the conditions under which the new graduates faced their work remained practically unchanged. No new laws were made which either helped or hindered them, and they were permitted to proceed about their own affairs without the intervention of politics. To-day, however, those who had taken their medical degree had joined a profession which had been made a pawn in the business of party politics —a business which appeared to have no regard either for truth or justice, unless these happened to be associated with party advantage. It seemed impossible to make a party politician consider national before party interests, unless it was made clear to him that things would be made very unpleasant both for him and his party. They of the medical profession must combine to form a strong and compact body in order to strike firmly and decisively in the interests of public health, which were the interests of the medical profession. Failure to form such a combination, or the formation of small competing combinations, would inevitably mean that the interests of the profession would be bartered for political advantage, which was not necessarily the public advantage. Whether the new conditions would result in the preponderance of good or evil nobody could say. Certainly they would result in both good and evil. It was quite clear that the ill-considered and hastily passed law which had created the present position would require much consideration before some sections of the contributory public and the medical profession received fair treatment, and it was not improbable that the time would come when medical men would have to fight for proper hours of labour and relief from clerical work to get time to attend to the advancing knowledge of their profession. These ends would not be gained except by united action.

Leith Burgh Insurance Committee.

The chairman, in a review of the first year's work, said that there had been 64 applications for sanatorium benefit, of which 55 were recommended for institutional treatment. About 540 visits to the dispensary had been paid for by the Committee, amounting to £67 9*s.* 3*d.*. and the expenditure (for about 10 months) was £851 for sanatorium and dispensary treatment. There were 46 doctors on the Leith panel, 22 resident in Leith and 24 in Edinburgh, and the figures received gave an average of six to seven attendances, and from three to four visits per day per doctor. In the report by the Scottish Insurance Commission the average number of insured persons to each doctor on the Leith panel was given as 539. This low average was obtained by dividing the insured persons in Leith equally among the 46 doctors on the panel, but as 24 of these doctors were resident in Edinburgh and had really very few Leith persons on their lists, the average was really much higher, being slightly over 1000.

Glasgow Royal Infirmary: Post-graduate Courses.

As in former years, a comprehensive course for graduates will be held during September. This course will include the following classes: Clinical medicine, clinical surgery, operative surgery, surgical diagnosis, clinical gynæcology, electro-therapeutics, urology, clinical examination of the urine and digestive products, anæsthetics, diseases of the ear, skin, throat and nose, and eye. The latter course is one specially designed with relation to school medical inspection and treatment. Complete syllabus and any other necessary information may be obtained from the superintendent of the infirmary.

Measles in Aberdeen.

There were 598 cases of measles in the city of Aberdeen during the month of May, and the deaths were exceptionally numerous, amounting to 69, of which no fewer than 56 were of children under the age of 3. The case mortality reached the exceptional height of 11 per cent. The medical officer of health states that neither the proportion of cases of lung complications nor of convulsions among the fatal cases was above the average; the virulent character of the infection appeared to be the chief reason for the high mortality.

Doctors and Insurance.

On July 4th, in University College, Dundee, a conference of the Scottish Committee of the British Medical Association with representatives of the Local Medical Committees was held. In brief, the conference arrived at the following conclusions with regard to the working of the National Insurance Act:—

That the name of the illness should not be inserted in the certificates

That [illegible] venereal disease is injurious to the [illegible]

That [illegible] of unqualified practitioners should not be allowed.

That the Midwives Act should be introduced for Scotland without delay.

That in rural practice the mileage question can only be settled on the basis of a one-mile limit.

That Insurance Committees should be asked to send any proposed agreements to the Medical Committees at least six weeks before the agreement must be concluded.

That the service of medical referees should be established by the Insurance Commissioners.

The following resolution was ordered to be communicated to the general press:—

That this conference protests emphatically against the charges of [illegible] ave been brought against practi- ieties and others in recent utter- [illegible] mands that such charges should at [illegible]

Tuberculosis Sanatoriums.

Stonehaven has agreed to acquiesce in the scheme proposed by the county council—namely, that a pavilion should be built at the Stonehaven Isolation Hospital for advanced cases of tuberculosis, and that other patients should be sent to the joint sanatorium which it is proposed to erect by the counties of Kincardine and Aberdeen, and by the city of Aberdeen.

Honorarium to Dr. Matthew Hay.

At a meeting of the Aberdeen Burgh Insurance Committee held in Aberdeen last week Dr. Matthew Hay, medical adviser to the Sanatorium Benefit Committee, was unanimously voted an honorarium of £100. The proposal originated in the Sanatorium Committee, who felt that Dr. Hay had given to the work an amount of time and of experience which they could not very well pay for. If the work done by the committee was as efficiently done, if not more efficiently, compared with any other similar committee in Scotland, it had been due to the coöperation of Dr. Hay, who brought into existence his splendid machinery for dealing with the sanatorium benefit. As a proof of the excellence of the arrangements, a member stated that since the beginning of July, 1912, 187 applications for sanatorium benefit had been received and 181 granted, and practically in no case had any notification of consumption been made to the local authority that had not been followed up by the Sanatorium Committee. The meeting also placed on record their appreciation of the services of Dr. G. S. Banks, of the City Hospital, who had been giving assistance in sanatorium cases at the City Hospital, although he was not an adviser to the committee.

July 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Tuberculosis Scheme in County Galway.

AT a recent meeting of the Galway county council a scheme was put forward by the chief tuberculosis officer of the county. His suggestion was that the county be divided into six or seven areas, in each of which there should be a branch tuberculosis dispensary, for which the county council should appoint six or seven part-time tuberculosis officers at £75 a year each. "It happens," he added, "that the Insurance Commissioners are about to appoint, for practically the same areas a number of medical men to act as medical advisers or referees at salaries of £75 each, and that it would be practical to combine the two positions." The appointment both of "medical advisers" and of part-time tuberculosis officers was subsequently objected to by the medical profession. The intention of the Commissioners in attempting to appoint "medical advisers" is, as in Dublin and elsewhere, to oust medical practitioners from signing certificates for their patients. The sum at the disposal of the Commissioners being insufficient to persuade medical men to break their pledges, the attempt was made to make the bribe larger by combining with the post of "medical adviser" that of part-time tuberculosis officer. The effect of appointing such part-time officers would be to deprive medical practitioners of any share in domiciliary treatment. The county council refused to accept the suggestion.

Meath Insurance Committee.

Some weeks ago the Meath Insurance Committee found its sanatorium fund in an insolvent condition. As a result it has been decided to discontinue the services of a whole-time tuberculosis officer, and to be content with part services. The practitioner who had been acting as tuberculosis officer is now to give part-time service at a salary of £300 a year.

Sanatorium Benefit.

A case illustrating the absurd way the sanatorium benefit under the National Insurance Act is being administered came before the Belfast guardians at their weekly meeting on July 8th. It appears that a young man, a State insured member who was on the sick list of the Rechabite Approved Society, entered the Whiteabbey Sanatorium, which is a Poor-law institution, and on an application being made for payment to this society the officials refused, as he had no dependents. The father, believing he could get the 6*s.* to which his son was entitled from the State Insurance, was prepared to pay for his sanatorium keep, but the Approved Society will not pay anything, nor will they make any provision where he is to be sent, although, curiously, the boy gets ordinary benefit as a member of the Rechabite Society. The guardians feel very strongly that in the circumstances this boy has no right to come to them as a pauper when he is insured under the State Act which promises sanatorium benefit.

Belfast Local Medical Committee.

At a meeting of medical practitioners of Belfast held on July 8th, Mr. W. McLorinan, Dr. S. W. Allworthy, and Dr. D. Gray were elected members in place of two medical men who have left Belfast and one who has resigned. The following were appointed as representatives to attend the delegates' meeting to be held in Dublin on Thursday, July 17th, for the purpose of forming a Central Medical Committee for Ireland for the ensuing year: Mr. R. J. Johnstone, Mr. T. A. Davidson, Dr. D. Gray, Mr. H. R. Irvine, Mr. W. McLorinan, Dr. W. Monypeny, and Dr. R. W. Leslie.

Queen's University of Belfast.

At the graduation ceremony held in the Ulster Hall, Belfast, on July 9th, the honorary degree of LL.D. was conferred upon the Right Hon. Christopher Palles, Lord Chief Baron of the Exchequer of Ireland, and upon Sir Donald MacAlister, Principal of Glasgow University; while the honorary degree of D.Sc. was conferred upon Sir Joseph Larmor, M.P., Sir A. W. Rücker, and Professor J. Norman Collie. In the evening the honorary graduates were entertained to dinner in the Examination Hall of the Queen's University, when their health was proposed by Sir Samuel Dill, to which Sir Donald MacAlister, Professor Collie, and Sir Joseph Larmor replied.

Belfast Hospital for Sick Children.

A sum of £300 has been paid to the treasurer of the Belfast Hospital for Sick Children, being proceeds from the Alexandra Day collection recently held in Belfast.

The Belfast Tuberculosis Scheme.

At a meeting of the public health committee of the city of Belfast held on July 10th attention was drawn to the fact that the Treasury's sanction to the tuberculosis scheme adopted by the council in May last had not yet been received, which was considered remarkable, seeing the pressure that had been brought to bear upon the council to undertake the treatment of tuberculosis and the guarantees given by the Treasury. It was decided to ask the Local Government Board what reason there is for the delay, as the Lords Commissioners of His Majesty's Treasury had given their sanction to the scheme.

Perforation in Typhoid Fever.

Dr. A. Gardner Robb, medical superintendent of Purdysburn (Belfast Municipal) Fever Hospital, reported to the public health committee of Belfast on July 10th that a recent operation done in that institution for perforation of the bowel, in the case of a patient with typhoid fever, had been successful, and that this was the third case of the kind which had occurred within about a year, all of which had been successfully treated and the patients restored to perfect health. Mr. A. B. Mitchell operated in all these cases, and it is interesting to know that these were the only cases of such a complication met with since the Purdysburn Fever Hospital has been opened, and that they were all saved by a surgical operation.

The Mater Infirmorum Hospital, Belfast.

The result of the annual street collection in Belfast on June 28th for this charity is that a sum of £1104 5*s.* has been realised, the highest total yet reached by any such effort for this hospital.

Ophthalmic Appointment.

Dr. Henry Hanna has been [illegible] visiting ophthalmic surgeon to the Belfast U[illegible] ccession to Mr. J. A. Craig, who [illegible] ointed lecturer [illegible] on ophthalmology and otology at Queen's University, Belfast.

Death of Mr. J. B. Hackett.

The death occurred last week of Mr. J. Byrne Hackett, of Kilkenny, one of the best known among provincial practitioners and local politicians in Ireland. A native of county Cork, he had practised in Kilkenny for over 40 years.

July 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Prix Bouchard.

Professor Bouchard, President of the Association Française pour l'Étude du Cancer, has placed 5000 francs at the disposition of the association to be awarded to the authors of the best works on the pathogenesis of cancer. In accordance with the donor's wish the prize will be awarded at the end of 1915. Only those works will be eligible which have been presented to the association and included in its programme between Feb. 15th, 1913, and the end of July, 1915. A committee of five, with the president and general secretary, will be appointed by the association, which will report in secret session in November, 1915, on the works submitted concerning the pathogenesis of cancer in accordance with the conditions above named. If no work is adjudged worthy, the prize will be again offered in the following year. The members will vote in secret ballot on the recommendations of the committee. In case of disagreement between the association and the committee the report will be sent back to the latter, which will receive an addition of two new members, but with consultative functions only. The prize cannot be awarded to a member of the committee. It may be divided.

A Curious Case of Paralysis.

At the Société de Médecine et de Chirurgie de Bordeaux M. Davezac related the case of a man, 72 years of age, in whom immediately the crisis of an apoplectic fit causing total left hemiplegia had passed intelligence returned, but the eyes remained closed. At the time of writing the left eye was beginning to open, but the right still remained closed.

The Dangers of Brushing Clothes.

According to Dr. Chaussé's experiments, the brushing of clothes is an important source of tuberculous infection. Pieces of woollen clothing were moistened with a small quantity (0·80 gr.) of sputum containing Koch's bacillus. After drying them at laboratory temperature, M. Chaussé brushed each fragment of cloth by means of a special apparatus in a metallic box of 126 litres capacity, and containing from five to eight guinea-pigs. All the guinea-pigs became tuberculous after the brushing of infected fragments that had been dried from two to four days. With fragments that had been dried for six days three out of six guinea-pigs became tuberculous. Only after drying for 15 days did the brushing become harmless, and even then one guinea-pig became tuberculous through the brushing of a piece of infected cloth that had been dried 16 days. From these experiments Dr. Chaussé concludes that the brushing of clothes infected with dried sputum is a very dangerous procedure for the first few days. The danger diminishes with the lapse of time, but does not entirely disappear for 15 days.

Treatment of Chronic Rheumatism.

At the Société de Médecine de Paris on June 28th M. Léopold-Lévi brought forward the results of thyroid treatment in chronic rheumatism. Even in severe cases it soothes, ameliorates, and causes resolution of the rheumatic condition. The more benign the rheumatism is, the more recent, and the less deforming, the more a definite and complete cure may be hoped for. From an experience during eight years of 300 cases, the author formulates the negative, the doubtful, and the experimental results of the treatment, the cases of limited improvement, the incomplete and transitory resolutions, total resolutions, and cures.

A Memorial to the late Professor Raymond.

A monument in memory of Professor Raymond, who succeeded Charcot in the chair of nervous diseases at the Salpêtrière and held the post for 16 years, was inaugurated at the Salpêtrière on July 6th. The attendance was numerous. Professor Debove spoke on behalf of the Academy of Medicine and M. Mesureur on behalf of the Assistance Publique. Professor Claude sketched the scientific career of Professor Raymond, whose assistant he was for many years. M. Dastre and M. Landouzy spoke feelingly of their close relationship with the dead savant. Finally Dr. Florand bore testimony to the rectitude, the generosity, and the modesty which distinguished him.

A Charge of Deserting a Patient.

In March, 1911, a M. Briet, a gardener living near Bar-sur-Seine, received a knife wound in the abdomen, through which the intestines protruded. As a member of a friendly society, M. Briet sent for the club doctor, who, however, did not attend till the following day, the patient then lying in a charcoal burner's hut. The doctor applied a moist dressing and went away, but did not return. A medical colleague, summoned some days later, operated *in extremis*, but unsuccessfully, and the patient died of generalised peritonitis. His widow sued the club doctor for 10,000 francs damages and an annuity of 500 francs for each of her two children. The court condemned him to pay 1100 francs indemnity and an annuity of 75 francs for each child. On appeal it was held that it had not been scientifically demonstrated that the patient's life might have been saved, and that, deplorable as was the doctor's conduct, it was not possible to affirm that the relation of cause and effect existed between the fault committed by the doctor and the death of Briet, so that judgment could not be given against the doctor. The claim of the widow was rejected.

Preventive Medicine in Relation to Itinerant Traders and Vagrants.

The prophylactic measures applicable to pedlars have been laid down by ordinance. At the time of making their official declaration they must show that they have been vaccinated or revaccinated against small-pox. On making application for their *carnets d'identité* they must furnish a certificate of successful vaccination within ten years. On the arrival of a hawker or a vagrant in a commune the mayor has the right to investigate his state of health and that of his companions. During their stay in the commune the mayor may, if necessary, visit their caravans or camping ground to satisfy himself of their state of health and of the sanitary conditions of their dwelling. Should the medical officer find a case of transmissible disease he is to advise the mayor and the prefect of the fact. Disinfection is to b practised during the illness, and after removal, cure, c death, with destruction of infected articles. The mayo will take the necessary measures to ensure the isolatio of the patient or his entry into hospital. These regulation are inscribed on a sheet attached to the *carnets d'identit* on which the medical officer inscribes the name, sex, and ag of the patient, as well as the nature of his complaint, an the mayor adds the prophylactic measures used. The us of fraudulent papers will render the offender liable t prosecution.

July 14th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

A New Theory of the Causation of Pellagra.

Professor Alessandrini and Professor Scala communicated to the Royal Academy of Medicine at Rome on May 23rd their new views on the etiology and pathogenesis of pellagra They consider that pellagra is a disease strictly limited to districts where the water comes from a clay soil, or flows on or stands upon clay, and that it is the effect of a chronic intoxication, of which the cause is silica in colloidal solution in waters of a determined composition. They explain the mode of action in the following way. Rain-water passing over clay, which is an aluminium silicate, provokes hydrolysis, with the formation of aluminium hydrate and silicic acid. These in the colloidal state are incompatible and precipitate one another, but an excess of silicic acid remains in the water. The first effect of this solution of colloidal silica upon the organism is a retention of chloride of sodium. In producing this effect they consider the colloidal silica to act like an enzyme, combining with the salt and then transferring it to the proteid molecule. In the new proteid compound a new reaction takes place by hydrolysis, giving rise to a pr [illegible] HCl group. This compound, [illegible] hydrochloric acid at once, givi [illegible] the authors consider the immediate cause of the disease. Professor Celli, in whose institute the work for this communication was done, received the theory with sympathy, but other speakers subjected it to severe criticism. In any case, Professor Alessandrini and Professor Scala have done a careful piece of original work and have made an interesting contribution to the study of this disease.

The Unqualified Practice of Hypnotism.

At Oneglia the court has recently been occupied for two days with the discussion of a case of some professional interest. A local station-master was on trial for violation of the laws relating to medical practice in that he, having no recognised medical qualification, had treated a number of persons by magnetism and hypnotism. It was admitted that he had neither asked nor received any fees for his treatment. A number of witnesses gave personal evidence of his success in a variety of neurotic disorders, often of long standing, and no evidence was produced by the prosecution of injury suffered by any of those who had come under his treatment. The court, however, held the view that hypnotism and suggestion are capable of doing serious harm and should only be practised by medical men, and inflicted a small fine.

The Persistence of Mediæval Superstition.

An affair which occurred recently in a village not far from Florence shows how superstition lingers in the country. A certain woman of ugly features and unpleasant manners was avoided by all the country side and was reputed to be a witch. One day she had an altercation with the wife of a labourer, and during their mutual vituperation she exclaimed, "May God strike you blind!" At a later date following some illness this labourer's wife lost her sight. Her relations were firmly convinced that she had been bewitched, and one day they caught the supposed witch, brought her before the blind woman, and tried by all means to make her restore the other's sight. On her protesting that she had no power to do so she was beaten and threatened with burning alive. They went so far that fire was put under her feet so that her boots were burnt, but then her persecutors relented and allowed her to go.

Medical Statistics.

Despite such evidence of ignorance, Italy is not without a good medical service, while many practitioners hold high positions. The "Annuario Sanitario d'Italia" for 1913, recently published, gives some figures of interest. The total number of medical men in Italy is 26,000, of whom 8000 are *medici condotti* or parish doctors, and 820 are dentists. There are 28 doctors in the Senate and 37 in the Chamber of Deputies. The midwives number 14,700 and veterinary surgeons 3300. There are 190 periodicals devoted to professional and sanitary subjects.

July 8th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Poisoning: a Trade in India.

THE Madras Chemical Examiner's reports of the cases of poisoning investigated show the carelessness with which poisons are handled and dealt with, and the cold-blooded earnestness with which the poisoner usually sets about his or her purpose. Here is a case in point. Owing to some litigation—a fruitful cause of enmity among the Indian community—a Brahmin widow sent some edible balls to her adopted son aged 6 through another boy aged 8. Naturally both the children ate the stuff, but the younger only died from arsenic poison. The woman was found guilty and sentenced to death. Her enmity, we presume, involved only the younger boy, but it was evidently a matter of small moment to her that the boy through whom she sent the balls would almost as certainly be a victim. Another noticeable point in these reports is the fact that the wandering poisoner is not yet extinct, and continues to ply his trade as he did in the days when thuggee and dacoity were rampant in the land, when railways were not in existence and the majority of the people did their travelling on foot. Such cases are not numerous nowadays owing to the improved means of travel, but we come across them every now and then in connexion with pilgrimages, temple festivals, and fairs; and in the report under review there are the details of three cases reported which bear a suspicious resemblance to cases of thug poisoning—murder apparently for the sake of murder, and with small hope of the gain to be secured by robbing their victims afterwards. Among inorganic poisons arsenic and mercury and its compounds were those most commonly used, but the list given shows that the knowledge of poisons possessed by the lower orders in India is both extensive and peculiar.

Sanitary Reform in India.

An Allahabad newspaper, commenting on the discussion in the House of Lords on Indian sanitary reforms and the policy which Government should adopt, says that there can be no question that Lord Crewe and Lord Sydenham are perfectly right in the contention that sanitary reforms are beset by great difficulties. The Secretary of State was perhaps employing language of exaggeration about a new revolution, but all who know India and the strong conservative feelings of the masses are aware that the utmost caution must be exercised in dealing with sanitary questions. This is particularly the case in rural districts, where millions of uneducated persons saturated with religious prejudices may resent any sudden interference with their daily routine of life. Sanitation by compulsion may be possible in large towns where educated Indian opinion can be enlisted on the side of the reformers, but even in these instances there is the danger of hasty action. Already there have been indications that unscrupulous seditionists may make capital out of the sanitary policy of Government by spreading alarmist stories among the Hindu masses, and hence the necessity for extreme caution about forcing the pace. The population generally must be won over, and this will be a slow process, though success should result in the long run as education spreads. If Lord Midleton had had any experience in India itself he would have been less positive in his statements, but the debate has served a good purpose in drawing a sound and practical speech from Lord Sydenham, fresh from five years of administration in Bombay. His view that no fault can be found with the subordination of the Sanitary Commissioner to the Director-General of the Indian Medical Service will be generally endorsed.

Temperance in the Indian Army.

The first report of the Indian Army Temperance Association has just been issued. The association sprang into existence on the initiative of certain retired Indian officers, 112 of whom gathered at Patiala at the opening ceremony, when an address was presented to the Commander-in-Chief. This address set forth that the object of the movement was to check the spread of drunkenness among the classes from which the Indian army is principally recruited, and that the patronage of the Maharaja of Patiala had been secured at the outset, a branch being at once formed amongst his troops. Sir O'Moore Creagh, in reply, expressed the belief that the association would do incalculable good in checking the use of intoxicating liquors and drugs, and in proof of his sympathy accepted the post of president. The report, after mentioning the evils of drink in India, particularly in the Punjab, Madras, and Rajputana, goes on to say: "It has often been stated that drunkenness is not prevalent in regiments of the Indian army, and that, therefore, a temperance association is not necessary. This is true to some extent, but it has been noticed by many who are in a position to do so that the drink habit in the country is on the increase, and therefore it is the duty of the army to see that this evil does not take a hold amongst its members and to show a good example to the civil population." Hence the appeal to all sirdars and ranks of the Indian army to coöperate. At the coronation durbar the attention of the men was gained by the formation of a camp, and Indian sports were held. The King-Emperor bestowed his patronage, and thus a good start was made. Funds were subscribed, donations given, and at the end of 1912 a substantial balance was in hand. Branches now exist in 21 units of the Indian army and in three of the Patiala Imperial Service regiments, the total number of members being 4420. This is a good record for little more than a year's work, and it can be rightly claimed for the association that it is firmly established.

Evils of Betel Chewing.

The evils of chewing betel-nut are illustrated in the report of the South Travancore Medical Mission for 1912, which states that of 330 major operations no less than 78 were cases of cancer due largely to betel-nut chewing.

Cocaine Habit in India.

The Bombay Excise report, which has just been issued by the Bombay Government, contains several items of interest to the whole country, as well as to the Bombay Presidency. The sections dealing with the illicit imports of cocaine and the efforts being made to check these imports have a very general interest; while the question, which is fully discussed, as to whether it is more desirable that licences to retail vendors of Excise liquors should be disposed of by auction or on the fixed fee principle is of great importance to Excise authorities all over India.

Praise for Bombay Nurses.

The Hon. Mr. Crystal, at the annual meeting of the St. George's Hospital Private Nursing Association held recently in Bombay, alluded to the gradual extension of the association's work, which was entirely self-supporting, and said that the very large number of the association's old nurses now holding superior appointments all over India was a gratifying testimony to the high position which the hospital held as a school for training nurses. Colonel Collis, physician in charge of the hospital, replying to a vote of thanks, said that St. George's was a nursery of the nurses in India. As the premier hospital in India its nursing association was well equipped and up to date. Beginning with a small staff of three or four sisters it had developed under the efficient management of the association to be one of the first training schools for nurses in India; they were sending out a large number of them, no only to different parts of the country, but up to Afganistan and Persia. He urged that the difficulties which prevented their nurses being still further employed should be overcome, as their training well suited them for more extended work in India than they were able to do at present.

Vindication of the Lauder Brunton Treatment of Snake-bite.

Successful treatments of snake-bite by the Lauder Brunton method are reported from several districts in the Central Provinces, but with the exception of one case which occurred at Drug it has not been clearly established that the snakes were poisonous. In the Drug case the victim, while in his hut at the village of Bhilai, was bitten in the toe by a snake. A basket was immediately put over the snake and information was at once sent to the police-station. A constable, who happened to possess the lancet, promptly proceeded to the hut and treated the puncture in the toe in accordance with the directions which accompany the Lauder Brunton lancets. Mr. Crawford, the Deputy Commissioner of Drug, saw both the man and the snake at the district headquarters on the following day, when the snake was clearly identified as a "krait" (*Bungarus coeruleus*).

The King Edward Memorial Hospital at Lahore.

A circular just issued states that the principal of the Lahore Medical College has been authorised to make purchases of equipment for the hospital up to one lakh of rupees (nearly £7000 sterling).

June 16th.

METROPOLITAN ASYLUMS BOARD.—The Metropolitan Ayslums Board, on July 12th, decided to appoint a consulting physician for skin diseases in succession to Dr. T. Colcott Fox, whose duties were confined to ringworm treatment. The duties of the new position will be to advise upon all cases of skin disease submitted by the medical superintendents, and the salary remains at £350 a year. On the recommendation of the Children's Committee the Board appointed Dr. James Galloway to the position. The Board approved plans for the extension, at a cost of £88,500, of Tooting Bec Asylum.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council of the Royal College of Surgeons on July 10th the following diplomas were conferred upon the undermentioned candidates who have complied with the by-laws of the College:—

F.R.C.S.—Philip Stanley Foster, M.B., Ch.B. New Zealand, L.R.C.P., M.R.C.S., Otago University and London Hospital; and Philip Henry Mitchener, M.B., B.S. Lond., L.R.C.P., M.R.C.S., St. Thomas's Hospital.

M.R.C.S.—George [illegible] University; Percy Haycraft Berry, [illegible] Guy's Hospital; Dennison Veitc[illegible] Hospital; and T[illegible]

L.D.S.—George Cowley Gell, Middlesex [illegible]

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held in Easter term the following candidates were successful:—

FIRST EXAMINATION.

Part I., Chemistry.—R. W. M. Dendy, non-collegiate; A. W. R. Don, B.A., and R. H. Emmett, Trinity; S. M. M. Jabir, Catharine; *J. G. Lawn, Sidney Sussex; T. H. McCall, H. Selwyn*; Y. S. Wan, *St. John's; and A. Winfield, M*[illegible]

Part II., Physics.—H. R. Bicker[illegible] Dendy, non-collegiate; R. H. Emmett [illegible]; S. M. M. Jabir, Catharine; J. G. Law[illegible] McCall, H. Selwyn; and A. Winfield, M.A., Downing.

Part III., [illegible] H. R. Bickerton, Trinity Hall; R. W. M. [illegible]: S. L. Higgs, St. [illegible]idney Sussex; T. H. McCall, H. Selwyn; [illegible]nd A. Winfield, M.A., Downing.

SECOND EXAMINATION.

Part I., Human Anatomy and Physiology.—K. Atkin, Jesus; G. A. Back, Caius; J. J. O. Beven, B.A., Christ's; J. T. Bleasdell, B.A., H. Selwyn; A. L. Bodley, B.A., Clare; C. E. Bond, W. S. Brown, and H. C. H. Bull, Caius; E. [illegible] B.A., Christ's; A. [illegible] B.A., Trinity; L. [illegible] Dendy, Caius; D. [illegible] E. A. Fiddian, Emmanuel; L. S. Gathergo[illegible] A. Gemmell, King's; F. H. S. Greenish [illegible] Hales, B.A., Pembroke; J. R. Harris, C[illegible]aultain, Caius; N. S. Hewitt, Sidney Sussex; F. E. Higgins, B.A., St. John's; L. S. Holmwood, B.A., Christ's; A. G. Irving, B.A., King's; W. N. Leak, B.A., Trinity; T. D. Morgan, B.A., Jesus; M. K. Robertson, Trinity; J. C. Russell, Caius; W. G. A. Schuddekop Emmanuel; C. G. Schurr, Caius; G. B. Sellwood, B.A., and E. W. [illegible] Sharp, Emmanuel; F. N. Sidebotham, Clare; B. H. Swift, Caius W. T. Warwick, B.A., Emmanuel; B. Whitehead, B.A., Clare; an A. G. Williams, A. T. Woolward, B.A., and R. H. Yolland, B.A Caius.

Part [illegible] C. [illegible] J. [illegible] Qu[illegible] W. H. W. Cheyne, B.A. Tri[illegible]. Courtis, B.A., Pembroke; C. S. Dodson, B.A., Queens'; B. C. Ewens, B.A., Caius; B. J. L. Fayle, B.A., Emmanuel; C. Gardiner-Hill, Pembroke; W. T. Hare, B.A., Christ's: R. Hargreaves, B.A., Caius; C. B. Hawthorne, Clare; L. G. Jacob, B.A., Christ's; A. H. Little, B.A., Corpus Christi; C. F. Mayne, B.A., and G. C. Metcalfe, B.A., Caius; S. H. Miles, B.A., Clare; B. Mountain, M.A., Sidney Sussex; E. C. W. Starling, B.A., Jesus; P. Wallice, B.A., King's; E. Watson Williams, B.A., Caius; W. L. Willett, Trinity; and A. G. P. Wills, Corpus Christi.

THIRD EXAMINATION.

Part I. (New Regulations), Surgery and Midwifery.—H. A. Bell, B.A., and E. J. Bradley, B.A., Jesus; E. J. Y. Brash, B.A., St. John's; G. M. Chapman, B.A., Caius; H. P. Dawson, B.A., Trinity; E. L. Dobson, B.A., King's; A. N. Hooper, B.A., Emmanuel; A. R. MacMullen, B.A., Caius; F. D. Marsh, B.A., Trinity; C. F. Mayne, B.A., and D. S. Page, B.A., Caius; N. S. Soden, B.A., and A. V. Stocks, B.A., St. John's; P. Stocks, B.A., and E. S. Taylor, B.A., King's; A. G. G. Thompson, B.A., and H. F. W. Warden, B.A., Pembroke; [illegible]anuel.

Part I. (Old [illegible] *and General Pathology.*—R. Hodson, [illegible] and J. H. Newmarch, B.A., Pembroke; M. W. Paterson, B.A., St. John's; A. S. Seabrooke, B.A., Christ's; and J. Ll. M. Symms, B.A., Caius.

Part II. (New Regulations).—K. B. Aikman, B.A., Clare; E. J. Y. Brash, B.A., St. John's; G. M. Chapman, B.A., Caius; H. Y. [illegible] W. J. F. [illegible]

P[illegible] Anderson, B.A., Clare; [illegible] B.A., St. John's; J. D. Clarke, B.A., Sidney Sussex; H. F. Com[illegible] B.A., King's; H. A. Douglas, B.A., H. Selwyn; J. R. Griffith, B.A., Christ's; J. R. Heath, B.A., Trinity; A. N. Hodges, B.A., Queens'; and R. Hodson, B.A., G. L. Keynes, M.A., L. R. King, B.A., and J. H. Newmarch, B.A., Pembroke; A. B. Paul, B.A., Christ's; M. N. Perrin, B.A., and W. A. Pocock, B.A., Pembroke; E. Ll. N. Rhodes, B.A., H. Selwyn; A. C. Roxburgh, B.A., Trinity; E. L. K. Sargent, B.A. St. John's; L. W. K. Scargill, M.A., Trinity Hall; R. Sherman, B.A., Caius; G. A. Smythe, B.A., V. F. Soothill, B.A., and W. A. Stokes, B.A., Emmanuel; J. Ll. M. Symms, B.A., Caius; F. J. Thorne, B.A., Jesus; J. M. Wallace, M.A., Downing; M. H. Watney, B.A., Trinity; and A. J. Waugh, B.A., Pembroke.

UNIVERSITY OF EDINBURGH.—At the graduation ceremony held on July 11th the following awards were made:—

Degree of Doctor of Medicine.

Francis Gordon Bell, Oliver Henry Blacklay, John Falconer Brown, John Brown-Lester, Leonard Horner Bryson, William Ewart [illegible] Willcox.

Degree of Master of Surgery.

Kenneth Mackenzie, Alexander Philip Mitchell, and Lancelot Edward Barrington Ward.

Degree of Bachelor of Medicine and Bachelor of Surgery.

Ernest William Adcock, William Robert Addis, Hira Singh Anand, India; Robert Pringle Anderson, William Henry Armistead, Frederick Cecil Kyle Austin, Joshua Isadoro Baeza, Tejnarain Bahadur, Israel Jacob Balkin, William Barclay, David Cuthbert Barron, Emanuel Olubomi Beckley, Alexander Bremner, Herbert [illegible]

Diploma in Tropical Medicine and Hygiene.—Alexander Dron Stewart.

Diploma in Psychiatry.—Percy William Page Bedford, William Russell, and Leslie Henderson Skene.

The degree of Doctor of Science was conferred upon Dr. Robert Arno Krause, and the following awards of fellowships, scholarships, medals, and prizes, were made:—Thesis Gold Medallists: Oliver Henry Blacklay, William Ewart Bullock, Alexander Philip Mitchell, George Matthew Robertson and George Duncan Whyte. Goodsir Memorial Fellowship: Francis Gordon Bell. Ellis Prize in Physiology: William Ewart Bullock. Gunning [illegible] Macnaughton. [illegible] John Gordon [illegible] celot Edward [illegible] mes Norman Jackson Hartley. Allan Fellowship in Clinical Medicine and Clinical Surgery: Ernest William Adcock. Freeland Barbour Fellowship: Thomas Douglas Inch. M'Cosh Graduate's and Medical Bursaries: David Cuthbert Barron. Murchison Memorial Scholarship in Clinical Medicine: Alan William Stuart Sichel. Beaney Prize in Anatomy and Surgery: James William Edington. Mouat Scholarship in the Practice of Physic: Douglas Martin. Conan Doyle Prize: Jacob William van Reenen. Annandale Gold Medal in Clinical Surgery: James Norman Jackson Hartley. Buchanan Scholarship in Gynæcology: James Norman Jackson Hartley. James Scott Scholarship in Midwifery: Thomas Pullar. Dorothy Gilfillan Memorial Prize: Isabella Stenhouse. Wellcome Medals in the History of Medicine: Gold medal, Thomas Pullar; Silver medal, Karl Frederick Sonntag. Pattison Prize in Clinical Surgery: John Mitchell Watt. Cunningham Memorial Medal in Anatomy: John Lewis Owen. Whiteside Bruce Bursary: Robert Mailer.

QUEEN'S UNIVERSITY OF BELFAST.—At examinations held recently the following candidates were successful in the subjects indicated:—

First Medical Examination.

Chemistry.—Jane Copes, Gerard John Crawford, William Gilmore, William Graham, Stanley Maclure Kirk, Daniel Joseph Loughran, John Egerton Rea, Samuel James Smyth, Maud C. Welsh, and Francis Purcell Woods.

[illegible]

Janie Clarke, John Workman Coates Colquhoun, Jane Copes, Gerard John Crawford, Margaret Crawford, William Cupples, Dorothy Isobel Dobbin, John Fegan, John W. Gaston, William Gilmore, Charles Graham, William Graham, Fred Hopkins, Thomas Frederick Ingram, Denis Liddell Ireland, John Lascelles, Samuel Lees, [illegible] John Carson [illegible] Alexander M[illegible] Meyer, Josep[illegible] Rea, Samuel [illegible] Welsh, Henry [illegible]

Botany.—John [illegible] Anderson, A[illegible] Workman Co[illegible] [illegible] ove, Daniel Joseph [illegible] M'Clelland, Joseph [illegible] n, Patrick Joseph [illegible] hn O'Prey, Annie [illegible] Harper Turnbull, [illegible] Woodside.

Second Medical Examination.

[illegible]

* Recommended for scholarships.

Third Medical Examination.

[illegible] bury Alexander, Edwin [illegible] tgomery, [illegible] dsay Rea, [illegible] Herbert [illegible] ompson, [illegible] d Robert [illegible]

M.B., B.Ch., B.A.O. Degrees.

[illegible] and Samuel John Yeates.

* Second-class honours.

M.D. Degree (*by Thesis*).

George Cooper, Joseph G. Johnston, and George E. A. Mitchell.

M.Ch. Degree (*by Thesis*).

Andrew. Fullerton.

Diploma in Public Health.

William Kirkwood Calwell, Frederick William Craig, Thomas Fleming-Stevenson Fulton, David George Gray, Richard M'Candless, William Brooke Purdon, James Jackson Robb, Walter Bernard Stevenson, Robert Stewart Taggart, and Eustace Thorp.

University of Bristol.—At the Second Examination for the Degrees of M.B., Ch.B. held in July the following were successful :—

Herbert Archer and Oliver Charles Minty Davis.

Foreign University Intelligence.—*Algiers:* Dr. Gillot has been appointed Professeur Agrégé of General Medicine.—*Basle:* Dr. Rudolph Massini has been recognised as *privat-docent* of Medicine.—*Berlin:* Dr. Richard Weissenberg has been recognised as *privat-docent* of Anatomy.—*Bordeaux:* Dr. L. P. Mauriac, Dr. P. E. Micheleau, Dr. Leuret, and Dr. Dupérié have been appointed Professeurs Agrégés of General Medicine.—*Cologne* (*Academy of Practical Medicine*): Dr. Albert Dietrich, prosector of the Charlottenburg Hospital, has been appointed to the chair of Pathological Anatomy, in succession to Dr. Jores, who is migrating to Marburg.—*Hamburg:* Dr. Kissling and Dr. Hegler have been appointed Senior Physicians to the General Hospital.—*Heidelberg:* Dr. Georg Hirschel has been granted the title of Extraordinary Professor.—*Lille:* Dr. Pierret and Dr. Leclercq have been appointed Professeurs Agrégés of General Medicine.—*Lyons:* Dr. Froment, Dr. Lucien Thévenot, and Dr. Piéry have been appointed Professeurs Agrégés of General Medicine.—*Montpellier:* Dr. Rimbaud and Dr. Roger have been appointed Professeurs Agrégés of General Medicine.—*Nancy:* Dr. J. V. J. Parisot has been appointed Professeur Agrégé of General Medicine.—*Paris:* Dr. Maurice Villaret, Dr. Tanon, Dr. Ribierre, Dr. Lemierre, and Dr. Lerebcullet have been appointed Professeurs Agrégés of General Medicine.—*Prague* (*German University*): Dr. Pelrina, extraordinary professor of medicine, Dr. Schenkl, extraordinary professor of ophthalmology, and Dr. Weil, extraordinary professor of surgery, are retiring at the conclusion of the current session.—*Rennes:* Dr. Damany, professor of hygiene and forensic medicine, has been appointed Professor of Clinical Medicine, in succession to Dr. Bertheux, retired.—*Toulouse:* Dr. Lafforgue, Dr. Sorel, and Dr. Serr have been appointed Professeurs Agrégés of General Medicine.

National Association for the Prevention of Consumption and Other Forms of Tuberculosis.—The fifth annual conference of this association will be held at the Central Hall, Westminster, S.W., on August 4th and 5th next. On Monday, August 4th, at 11.30 A.M., the opening address will be delivered by the Prime Minister (the Right Hon. H. H. Asquith, M.P.). The morning and afternoon sessions will be devoted to the subject of Tuberculin Treatment. After a general survey by Dr. H. W. G. Mackenzie, papers will be read by Professor G. Sims Woodhead (Cambridge), Professor Dr. Lydia Rabinowitsch-Kempner (Berlin), Professor Béraneck (Neuchâtel), Professor Sahli (Berne), Dr. Nathan Raw (Liverpool), Professor Wm. Charles White (Pittsburg), Professor Petruschky (Danzig), Sir James Kingston Fowler, Sir StClair Thomson, and Dr. W. Halliday Sutherland (London), Professor J. G. Adami (Montreal), Sir R. W. Philip (Edinburgh), Dr. Noel D. Bardswell (Midhurst), Dr. Clive Rivière, Dr. von Unterberger (St. Petersburg), Dr. Rist (Paris), Dr. Rollier (Leysin), Dr. Amrein and Dr. Morland (Arosa), and others. In the evening will be held the annual meeting of the association and a conversazione, at which Dr. Rollier will give a cinematograph demonstration on the Cure of Surgical Tuberculosis by Direct Sunlight. On Tuesday, August 5th, there will be a public discussion, open to all delegates, on the Need for the Coördination of Antituberculosis Measures, to be opened at 10.30 A.M. by Sir R. W. Philip. The following have promised to take part: Mr. Arthur Neal (England), Professor J. G. Adami (Canada), Dr. Hermann Biggs and Professor Wm. Charles White (United States), Professor Dr. Pannwitz (Germany), Dr. Rist (France), Professor Saugmann (Denmark), Professor Tamburini and Professor Signorelli (Italy), and Dr. von Unterberger (Russia). At 4 P.M. Dr. A. C. Inman (superintendent of laboratories, Brompton Hospital) will give a demonstration on the Preparation and Properties of Tuberculin. Dr. J. J. Perkins, the honorary secretary, will be glad to send a card of admission, programme, and voucher for reduced railway fare to any medical practitioner who makes application to him at 20, Hanover-square, London, W.

Exeter City Asylum.—The committee of this asylum in its twenty-sixth annual report to the Exeter city council states that during the past 12 months there has been a profit of £1794 on the working of the institution, and this sum has been paid to the local borough fund.

Northern Nursing and Midwifery Conference.—A Nursing and Midwifery Conference and Exhibition will be held at Glasgow in February next, with the object of bringing together matrons, nurses, midwives, and health workers residing in Scotland and the North of England.

Presentation to a Medical Practitioner.—The members of the Axminster (Devon) Voluntary Aid Detachment recently made a presentation to Mr. John Nevill B. Vise, L.R.C.P. Lond., M.R.C.S. Eng., who is shortly going to Australia, in appreciation of his services as honorary instructor.

Society for Relief of Widows and Orphans of Medical Men.—A quarterly court of the directors of the above society was held on Wednesday, July 9th, Sir Thomas Boor Crosby, the President, being in the chair. Fourteen directors were present. The deaths of Mr. A. Willett (vice-president) and Mr. L. Archer (director) were reported. Two gentlemen were elected members of the society. £1333 were voted for the payment of the half-yearly grants to the widows and orphans on the books of the society. Since the last court three widows had died. One whose husband had paid in subscriptions £26 5*s.* had been on the funds since 1885, and had received from the society £1540. The actin treasurer reported that the total amount received from th estate of the late Mr. James Brickwell was £37,250, bringing in a yearly income of £1325 10*s.* A scheme for utilisin this was submitted to the court, and was adjourned to th October court for further discussion. A legacy of £250 ha also been received from the executors of the late Mr. Windsor of Manchester. Membership is open to any registered medica practitioner who at the time of his election is resident withi a 20-mile radius of Charing Cross. The annual subscription i two guineas. Special terms for life-membership, varying wit the age of the applicant. Full particulars may be obtaine from the Secretary, at the offices of the society, 11, Chandos street, Cavendish-square, W. Relief is only granted to th widows or orphans of deceased members, and the secretar is constantly receiving letters from widows of medical me who have been left practically penniless, asking for relief, but this has to be refused as their husbands had not been members of the society.

London Hospital Medical College and Dental School.—The Rev. Canon J. Howard B. Masterman, a member of the College Board of the London Hospital, on July 14th distributed the following prizes to the students of the Medical College and Dental School :—Price scholarship in science, £100, R. G. Simpson. Price scholarship in anatomy and physiology, £52 10*s.*, W. D. Newcomb and A. C. Ainslie. Entrance science scholarship, £50, V. J. F. Lack. Buxton scholarship in arts, £30, H. L. Douglas and S. E. Harvey. Epsom scholarship, S. H. de G. Pritchard. Clinical medicine prize, £20, not awarded. Clinical surgery prize, £20, Mr. P. Roux. Clinical obstetric prize, £20, R. J. M. Love and J. Deighton; hon. certificates, H. G. Oliver and J. Bostock. Duckworth Nelson prize, £10, D. E. Morley. Letheby prizes, organic chemistry, £10, M. Shimberg; hon. certificate, D. G. Norris. Inorganic Chemistry, £15, R. D. Aylward; hon. certificate, G. Adler. Sutton scholarship, £20, J. Bostock; hon. certificate, M. J. Cronin. Anatomy and physiology prize, £25, A. H. Morley and H. W. L. Molesworth; hon. certificate, H. Collins. Dressers' prizes: Elementary clinical surgery: £10 prizes, A. G. Winter and S. Batchelor; £5 prizes, L. M. Ingle. W. D. Newcomb, C. P. Allingham, and P. C. P. Cloake; hon. certificates, W. B. Purchase and T. T. B. Watson Minor Surgery, £9, H. G. Broadbridge; £5 prizes, F. K. Marriott and M. Shimberg; £2 10*s.* prizes, V. J. F. Lack and A. B. Dummere. Anderson prizes: £3 prizes, R. G. Michelmore and P. C. P. Cloake; £1 10*s.* prizes, A. J. Y. McDonnell and A. P. Saint; hon. certificates, J. McDonnell and O. G. T. Mosse. Practical anatomy prizes: £6, L. G. Jacob and O. A. Hutchinson; £4, R. K. Ford and V. Feldman. Douro Hoare prize, £5, R. G. Simpson. Douro Hoare prize for dental students, £5, A. G. Harsant. Wynne Baxter prize, M. J. Cronin.

Association for the Oral Instruction of the Deaf and Dumb, Fitzroy-square.—The annual meeting of this association will be held at the Portman Rooms, Baker-street, London, W., on Tuesday, July 22nd, at 3.30 P.M., when a short illustration of the system will be given. Captain H. M. Jessel, M.P., will preside.

Deaths of Eminent Foreign Medical Men.—The deaths of the following eminent foreign medical men are announced:—Dr. Frank Hartley, professor of clinical surgery in the Columbia College of Physicians and Surgeons, New York.—Dr. P. Gérente, formerly senator for Algiers.—Dr. Manuel Piñeiro, professor of medical pathology in the University of Santiago, Spain.

Devonshire Centenarians.—Mrs. Ann Brown, of Moretonhampstead, celebrated the 100th anniversary of her birthday on July 6th, and received a congratulatory message from the King.—Miss Lemon died at Ilfracombe on June 29th. She was born at Clifton (Gloucestershire), and had she lived until August 19th would have been 103 years of age.

It may be well to remind members of the Inter-

precisely. Tickets, price 25s, (including wine and cigars), may be obtained from Mr. George Bethell, 11, Chandos-street, Cavendish-square, W., up to August 5th, and after that date at the Central Bureau, Albert Hall.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Sir Victor Horsley and the Home Secretary.

The correspondence of the Home Office with the Royal College of Surgeons of England and Sir Victor Horsley with regard to the case of Miss Lilian Lenton is published as a Parliamentary white paper.

The National Insurance Act (Amendment) Bill.

The House of Commons on Tuesday, July 15th, agreed to the second reading of the National Insurance Act (Amendment) Bill. The discussion was not entirely confined to a consideration of the details of the Bill, but certain wider aspects of the National Insurance Act were debated. For instance, medical benefit in its administrative as apart from its financial side, excessive sickness, and the solvency of Approved Societies came up for review, and Mr. Masterman, who is the Minister most closely associated with the National Insurance Commission, in the course of his speech, foreshadowed the appointment of a committee to examine the question of malingering, the granting of medical certificates (which, it was alleged, were too freely given in some parts of the country), and other matters.

Mr. Lloyd George (Chancellor of the Exchequer) formally moved the second reading of the Bill.

Mr. H. W. Forster, speaking from the Front Opposition Bench, expressed the opinion that the Bill did not cover all the matters which required amendment. It contained some useful proposals dealing with minor matters, important in themselves, but it really touched only the fringe of the problem as a whole. As to medical benefit, he thought there were weighty reasons for extending the scheme under the existing Act. There was no doubt that the Act originally contemplated the provision of medical benefit broadly and generally on the panel system, but it had been also contemplated that persons who desired it should have free choice of medical men. Now that the panel system had been established throughout the country, surely there was an opportunity to allow people who desired it to make their arrangements outside that system. There was undoubtedly a very strong and genuine desire on the part of a great number of persons to go outside the panel system. There was the Scottish Clerks' Society—a case that was perfectly well known to the Government. In his judgment, it has a distinct grievance against the Chancellor of the Exchequer and the Government for the treatment it had received. Its members were willing to pay increased contributions in order that they might avoid calling in panel doctors, but should have a free choice of their own. When the Government found people willing to submit to levies on their own account, to secure medical men of their free choice, why on earth could they not be allowed to do it? He hoped it was not too late to put into the Bill provisions to allow committees with the consent of the Insurance Commissioners to allow people in such circumstances to make their own free choice. The report of the Insurance Commissioners showed what a gigantic task they had had to accomplish. No one would deny the extraordinary courage shown by the Commissioners to overcome every obstacle. Reading it, he was more than ever surprised at the scanty proposals of the Government Amending Bill. There were several passages in the report which filled him with alarm. Several societies were told that they were overspending. Many lives were now brought into the societies practically without any medical examination at all. That offered food for the very gravest reflection because the whole financial foundation on which the National Insurance Act rested depended upon actuarial calculations, which were derived from the experience of picked lives, who in nearly every case had passed a more or less stringent medical examination. He read in the report about the excessive sickness claims. Some of them were attributed to malingering, but there was something more than malingering. Excessive sickness claims arose, partly from the fact that there had been admitted into the societies increased risk and bad lives. In some societies the sickness claims had increased by 30 and 40, and even up to 70 per cent. The whole fabric of the present scheme of finance rested upon the actuarial calculations which were derived from the statistics of voluntary system of insurance. This alteration threatened the stability of the whole structure. The original cost of £4,000,000 to the State had already increased to nearly £7,000,000, and now Parliament could not leave out of account the increased liabilities placed upon the societies. A valuation would not take place for three years, but in the meantime this problem of solvency would increase and at the end of three years the state of things might be so unsatisfactory as to bring ruin to the Friendly Societies themselves. He admitted that this state of things had not been foreseen, and he was profoundly disappointed that the Government had shown no disposition to grapple with the larger difficulties.

Mr. Masterman (Secretary to the Treasury) said that all the criticism of the honourable Member was directed to problems outside this Bill. When it was realised what the nature of the attack upon the Insurance Commissioners during the first five or six months of their existence had been, the tribute to their good work which had come from the Front Opposition Bench was to be particularly noted. The criticisms that had been made by the honourable gentleman related (1) to medical benefit, and (2) to Approved Societies and the problem of excessive sickness. As to the extension of medical benefit he would say that any amendment put down by the honourable gentleman would have most serious consideration by the Government. But he would point out that it was the duty of the Insurance Committees to arrange for medical benefit for all persons insured within their areas. The panel system was now in existence, and in every case where contracting-out had been demanded the doctors who wished to have patients contracted-out wished to choose selected lives, and at the same time to obtain the same remuneration as doctors who were working under the panel system. If the Insurance Committees allowed five doctors out of ten in a district to choose all the good lives and to leave all the bad lives to the other five, and yet to divide the money equally, that was obviously unfair.

Mr. H. W. Forster: My point is not the doctor's point of view. I am looking at it from the point of view of the insured person. If the insured person wants a doctor who is not on the panel the Act gives him the right to obtain him if the doctor is willing.

Mr. Masterman: If an insured person A says that he wants a doctor, and thereby prevents insured person B getting any doctor, he has no right to do it. The right honourable gentleman went on to say that the British Medical Association had conducted an agitation against the panel system and in favour of contracting out. However, he pointed out that there were many systems now established in South Wales whereby miners and other workers wished for doctors who would take on men, women, and children for a certain fee, but the doctors who were anxious to promote contracting out where the system was not in existence were anxious to stop it in these districts where it was asked for. The British Medical Association was in rather a dilemma on this point. Surely the sensible thing was for every doctor to go on the panel—let it even be for 20 patients. Let them put an end to the distinction between the doctor who was on the panel and the doctor who was not. Every Insurance Committee which he knew was anxious to welcome doctors on the panel, and he would strongly submit to the honourable gentleman and his friends that they should endeavour to get a system with no doctors fighting the panel system. On the question of excessive sickness claims, it was grotesque to imagine that in six months' working of the Act any reliable statistics could be obtained. Certain statements were made relating to certain districts and certain societies that the sickness demands had gone up in comparison with

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calculations. Such facts should be put before the House before honourable Members accused the Government of being indifferent to rather vague statements about excessive sickness. It was the case that there had that date the prisoner's condition was satisfactory, and the daily reports, till her discharge on the 8th of April, show that it did not deteriorate in the interval. Her discharge was not rendered necessary by the state of her health.

Mr. Forward and Dr. Pearson feel greatly aggrieved that they should have been thus publicly attacked by Mr. Mansell Moullin and Sir Victor Horsley, both Fellows of the College to which they themselves belong.

2nd May, 1913.

PAPERS enclosed with the PRISON COMMISSIONERS' MEMORANDUM.

Paper No. 1.

REPORT by Mr. PEARSON, Deputy Medical Officer of Holloway Prison.

It became necessary to feed this remand prisoner on Sunday morning after abstinence from food for three days. She had refused to be medically examined, but such examination was made as was possible in a struggling woman, and *nothing* was found to contra-indicate forcible feeding. She [illegible] about 11 A.M. by nasal tube with peptonised [illegible] in the passing of the tube or distress to the [illegible] violent struggling.

Nothing was observed of an abnormal character until 1.45 P.M., when she complained of feeling ill. Dr. Forward and I were called in and found her in a collapsed condition. We were now able to examine her and came to the conclusion that her life was in imminent danger. She still persisted in her refusal to take anything; and her state was now such that it was impossible to administer food or medicine forcibly. In these circumstances we had no course open but to recommend her instant release.

ALLAN C. PEARSON, M.B., M.R.C.S.
27th February, 1913.

Paper No. 2.

MR. MANSELL MOULLIN to the SECRETARY OF STATE.

69, Wimpole-street, W., 27th February, 1913.

DEAR SIR,—You are reported to have said in the House of Commons that there was no instance in which physical injury had been inflicted on a prisoner as the result of forcible feeding.

I presume you had not seen the report drawn up by Sir Victor Horsley, Dr. Agnes Savill, and myself, published in the "Lancet" and the "British Medical Journal."

As there is now another case (which may yet prove fatal) in which it is certain that food was forced into the lungs by the prison officials, instead of into the stomach, may I ask you, as a gentleman and a member of H.M.'s Government, to retract that statement and to give your retraction the same publicity that you gave your original statement.

Should you desire to study the report to which I have alluded, the conclusions of which have never been contradicted in any way, I shall be happy to forward you a copy.

I am, &c.,
Right Hon. R. McKenna, M.P. C. MANSELL MOULLIN.

69, Wimpole-street, W., 3rd March, 1913.

DEAR SIR,—As you have not yet replied to my former letter, may I call your attention to a misleading and very inaccurate statement purporting to have been issued from the Home Office?

It has been stated by one of the secretaries that Miss Lenton's illness was caused by abstinence from food. This is, of course, a mistake. Even the most ignorant of secretaries must know that such an illness could not be caused in that way.

It is due to food having been forced into her lung (as we warned you it would be) by the manipulation of the prison officials. How this could have been allowed to happen, you will, of course, inquire.

I am afraid that this statement is likely, unless it is contradicted by you, to be characterised in society, in your constituency, in the press, and on public platforms, by a term which I cannot use.

We will make every endeavour to give you an opportunity of contradicting it in the House, but as Parliament does not sit for a few days, you may like to do so at once. Fortunately Miss Lenton's statement, which bears the stamp of truth, had several days' start. This will make your correction all the more easy.

I am, &c.,
The Right Hon. R. McKenna, M.P. C. MANSELL MOULLIN.

Paper No. 3.

REPORT by Mr. FORWARD, Deputy Medical Officer of Holloway Prison.

With reference to the allegations contained in the correspondence forwarded for my perusal by the Commissioners respecting the above-named prisoner, I beg to report as follows:—

She was received here on remand on February 21st, 1913. I saw her shortly after reception, when she refused to be medically examined and declined to give any information about her previous health. She was of rather spare physique, and struck me as not being a particularly strong-looking woman, but I was unable to ascertain anything further about her on account of her refusal of an examination. She adopted the hunger strike tactics from the commencement, and, consequently, on February 23rd I considered it advisable to artificially feed her as she [illegible] ition. She was examined both by [illegible] commencement of the feeding, [illegible] resisted violently. She was fed by nasal *tube which passed easily.* During the process there was no *cough* [illegible] *o indi-* [illegible] rested [illegible] About [illegible] vatory. [illegible] the left side and she then allowed me to examine her. I ascertained that she had been subject to attacks of pain in this region and shortness of breath on exertion for the last 12 months, but apparently she had not received medical advice about it. On examination I found slight dulness in the lower part of the left axillary region, and some doubtful friction sounds. The cardiac action was rapid, but I could detect no organic disease. The pain in the side was increased on taking a deep breath. I came to the conclusion that [illegible] pleurisy, which may have been present before [illegible] story, and which had become subacute again. [illegible] that she would take no nourishment or medicines, that she had been without food for two days, and that her life would be endangered under such circumstances, and it was quite impossible to artificially feed her again, the only alternative was to report the facts to the Home Office. There was nothing to suggest in the case that her condition was due to food entering the lungs, and this is borne out, I understand, by her own medical attendant, under whose care she has been since, and who reported that she was now convalescent.

FRANCIS E. FORWARD, F.R.C.S.
5th March, 1913.

Paper No. 4.

REPORT by Mr. PEARSON, Deputy Medical Officer of Holloway Prison.

On instructions being given for this woman's release, I accompanied her in the taxicab with a hospital officer to her home. I assisted in carrying her to her room, and told the friends I would like to hand over the case to some doctor who lived in the neighbourhood. They refused to take my advice, and decided to wait for Dr. Frances Ede. After finding the patient was comfortably in bed I left, giving instructions that the medical attendant whom they called should be told that the patient was, as far as I could tell, suffering from pleurisy, and that [illegible] ut 2 P.M. [illegible] — was attending the case, I called *on him the* [illegible] the case, and he has kept me informed of the [illegible] up to yesterday, when he reported her as convalescent.

Dr. —— has agreed throughout with Dr. Forward and me that her symptoms could in no way be attributable to the presence of food in the lungs. There have been no indications of bronchitis or pneumonia, which would have undoubtedly been present had such been the case.

We are all agreed that the patient has had an attack of pleurisy, to which she was probably predisposed, judging from her previous history.

ALLAN C. PEARSON, M.B., M.R.C.S.
5th March, 1913.

Paper No. 5.

LETTER of Dr. AGNES SAVILL, Mr. MANSELL MOULLIN, and Sir VICTOR HORSLEY, published in the "Times" of 18th March, 1913.

The Case of Miss Lenton.

To the Editor of the "Times."

SIR,—The Home Secretary recently issued a formal statement i regard to the sudden release of Miss Lenton that she "was reported b the Medical Officer at Holloway Prison on Sunday, February 23, in state of collapse and in imminent danger of death consequent upon he refusal to take food. Three courses were open:—1. To leave her to di 2. To attempt to feed her forcibly, which the medical officer advise would probably entail death in her exhausted condition. 3. To releas her on her undertaking to surrender herself for the further hearing her case. The Home Secretary adopted the last course."

From these expressions employed in this letter the public we completely misled as to the true facts of the case. She was certainl "in imminent danger of death" on that Sunday *afternoon*, but th was not due to her two days' fast, but to the fact that during forcibl feeding executed by the prison doctors on the Sunday morning, foo was poured into her lungs.

The statement issued from the Home Office, quoted above, was n only contrary to the facts, but was also constructively misleading, i that it made no mention whatever of the prisoner having been forcibl fed.

In consequence of the real facts becoming generally known, M Remnant, on March 13, asked the Home Secretary whether "*durin* an attempt to feed the suffragist prisoner, Miss Lenton, the tube use was introduced into the trachea, thereby causing some of the liqui food to pass into the lung; whether Miss Lenton was thereupo released from prison, it being the opinion of the medical officer i charge that her life was in danger; and whether the doctor wh *examined her on her release found that pleurisy was present togeth* with lung mischief."

To this question Mr. McKenna said "there was no foundation for th statement which has been made that the tube entered the trachea that any food passed into the lung. Miss Lenton's collapse occurre some hours after she was fed and was due to the bad state of he health aggravated by her refusal of food." Mr. McKenna admitte that he knew her own doctor had found her to be suffering fro pleurisy.

The facts of this case are as follows, and to any unprejudiced medic practitioner prove that the Home Secretary's attempted denial tha Miss Lenton was nearly killed by the forcible feeding is worthless.

In the first place, Miss Lenton was seen in prison on Saturday after noon, February 22, 1913, by her solicitor, Mr. Marshall, who report that on that day he saw her officially on a matter connected with he *impending trial. He found her then absolutely normal, in good spirits* and making light of her two days' fast. Yet on the following afternoo she was "in imminent danger of death," as admitted by the Hom Office, and the only cause of which could be the forcible feedin inflicted upon her that morning.

On Sunday morning, February 23, 1913, Miss Lenton was forcibly fed in Holloway Prison by Dr. Forward and another doctor and seven wardresses. She was tied into a chair and her head dragged backward across the back of the chair by her hair, the usual prison method of "restraining" these prisoners. The tube was forced through the nose twice. No food could be got through it the first time and after the second introduction when the food was poured in it caused violent choking, the breathing became very violent and noisy, so that the doctor told her to breathe more quietly. The noise of the rattling was so loud that she actually was afraid it would alarm her fellow prisoner. *Breathing was almost impossible*, and she coughed violently and continuously, so, though the food was poured in twice, it came back at once and out of the mouth. When the tube was removed she fell against the wall and continued to cough, then great pain began, extending from the waist upwards and in the front of the chest, and the ra[illegible] isted. [illegible] the cell, and Miss Lenton was put on a m[illegible] floor.

The pain became intense. The doctor [illegible] examined her chest and warned her not to set up. He [illegible] gave her bovril and brandy and two h[illegible] left and returned with the governor, w[illegible] once. The doctor then gave her another hypodermic injection (presumably for stimulation), saying it was necessary to enable her to stand the journey.

She was carried in a chair to a taxi, and the prison doctor himself, with a wardress, took her to the house of a friend of hers. There they gave her more "stimulation" treatment and carried her upstairs. The prison doctor said a local doctor must be fetched at once. This was done. That [illegible] was gravely ill. [illegible] the base of the [illegible] certified that h[illegible] cleared up. Under his care she has slowly recovered, and is now convalescing.

These plain facts of Miss Lenton's case prove clearly that the food which was forcibly injected into her lung set up a pleuro pneumonic condition which, but for her youth and good healthy physique, would have ended more seriously.

That the prison doctor and the governor recognised immediately [illegible] nd at the further [illegible] from the prison, [illegible] compromise the [illegible], of which they [illegible]

[illegible] pleurisy to a private house. Fortunately she too was young and [illegible]

March 16. VICTOR HORSLEY, F.R.S.

Paper No. 6.

"TIMES" REPORT of DEBATE in HOUSE OF COMMONS on 18th March 1913, on RELEASE OF SUFFRAGIST PRISONERS.

(Not printed. *See* Extracts from the "Parliamentary Debates.")

Paper No. 7.

REPORT by Dr. HERBERT SMALLEY, H.M. Medical Inspector of Prisons.

The statement that the condit[illegible] the prisoner's lungs is not true. [illegible] due to wilful abstinence from fo[illegible] robust and who subsequently ga[illegible] the chest, with shortness of breath on exertion, for a period of some 12 months, would be more likely to cause cardiac failure to occur sooner than in a person in robust health and without the above history.

She was not tied into a chair, but a sheet was thrown round her body and she was restrained by officers. Her head was not dragged across the back of the chair by her hair. This is not the usual method of [illegible] are restrained by female officers and, [illegible] violent, by an attendant controlling [illegible] ther officer holds the head by placing [illegible] ent's head, and a sixth officer would be in charge of the food.

The tube was not forced through the nose twice, but passed only [illegible] into the air passage. [illegible] that food was forced into the lungs

H.S.
18th March, 1913.

Paper No 8

LETTER of Mr. MANSELL MOULLIN and Sir VICTOR HORSLEY, published in the "Pall Mall Gazette," 1st May, 1913.

Forcible Feeding.

SIR,—On March 16, with Dr. Agnes Savill, who is absent on holiday, [illegible]

[illegible] 19 [illegible]

(2) That "the patient's own doctor agreed with our (*i.e.*, the prison doctors."[5]

Both these statements, being contrary to the facts, completely [illegible]

(2) [illegible]

When Mr. McKenna has withdrawn this second misstatement, which doubtless served its purpose in the House of Commons, what is left?

Three medical reports which he also read to the House.

Of these, two are by the prison officers who executed forcible feeding and are responsible for the misadventure which so nearly ended in a tragedy.

[illegible] refutes every line of their reports.

Finally, a third report was also read by Mr. McKenna to the House of Commons and purporting to be a denial of Miss Lenton's statement as given by us.

[illegible] tality of his forcible feeding is [illegible] introduce legislation (in itself [illegible] has been falsely called medical [illegible] n said is neither painful nor dangerous.

Yours faithfully,
CHARLES MANSELL MOULLIN.
VICTOR HORSLEY.

28th April.

Paper No. 9.

REPORT by Mr. MANSELL MOULLIN, published in the "Suffragette," 18th April, 1913.

Miss Emerson's serious state.

Medical Report.

The following report has been issued by Dr. Mansell Moullin with regard to Miss Emerson, whom he is attending:—

69, Wimpole street, W.

Miss Emerson was taken to a nursing home on Tuesday (8th) at 9 30 P.M. [illegible] weight to a serious [illegible] not quite collected [illegible] omplete breakdown [illegible] by horrible dreams [illegible]

C. MANSELL MOULLIN.

[illegible] o allow of her giving a [illegible]

Paper No. 10.

REPORT of Mr. FORWARD, Deputy Medical Officer of Holloway Prison.

Zelie Emerson.

[illegible] was admitted to hospital [illegible] d her mental condition [illegible] lays she has been much [illegible] us very little trouble in [illegible]

1st April, 1913. E. FORWARD, F.R.C.S.

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[2] The Prison Commissioners report that no case occurred at Birmingham Prison which answers in any way to this description.

[5] [illegible] e actual words are given in the [illegible] fter answering an interruption, [illegible] or who has attended her . . . [illegible] *that the illness was due to the* [illegible] Victor Horsley refuses to produce. [illegible] marily due to wilful abstinence [illegible] The reason for releasing her [illegible] fused to take food in prison, and food was in her condition necessary to preserve life.

[6] All the reports are signed. The official designations of the officers who made them were stated in the House of Commons.

The Royal College of Surgeons to the Home Office.

Lincoln's Inn Fields, London, W.C., 13th June, 1913.

Sir,—With reference to your letter of the 5th ultimo, No. 234788/18, calling the attention of the College, by direction of the Secretary of State, to certain public statements by two Fellows of the College with regard to the professional conduct and skill of two Deputy Medical Officers of H.M. Prison, Holloway, I am directed to communicate to you, for the information of the Secretary of State, the following reply adopted by the Council c[illegible] yesterday:—

> The statements a[illegible] case of Lilian Lenton, submitted t[illegible]y of State, are in many respects in [illegible]ould point out that they have no authority to compel the attendance of witnesses, and have not the power to hold such a judicial inquiry as would be necessary in order to enable them to decide the points at issue They are, therefore, unable to enter upon the ethical questions involved, and are not in a position to determine whether anything has occurred calling for action on their part.

I am, &c.,
S. Forrest Cowell, Secretary.

The Under Secretary of State, Home Office.

II.—CORRESPONDENCE OF THE HOME OFFICE WITH SIR VICTOR HORSLEY.

(1) Sir Victor Horsley to the Secretary of State.

25, Cavendish-square, W., 1st May, 1913.

Sir,—On March 18th, 1913, you attacked me by name in the House of Commons, where I, of course, could not answer you, in respect of Mr. [illegible] the case of Miss Lenton, the prisoner who [illegible]e feeding executed by your authority. [illegible]ve reinvestigated the case, and our further [illegible] form in the "Manchester Guardian" (copy enclosed[7]) and other p[illegible]ed in your House of Commons s[illegible]ter, and I must now ask you to [illegible] upon my veracity in Parliament [illegible]

[illegible] Horsley.

(2) The Secretary of State to Sir Victor Horsley.

Home Office, Whitehall, S.W., 2nd May, 1913.

Dear Sir,—I am desired by the Home Secretary to acknowledge the receipt of your letter enclosing a copy of a further letter which appeared yesterday in the "Manchester Guardian" signed by Mr. Moullin and yourself on the subject of the prison treatment of Miss Lenton.

After reading the letter from the "Manchester Guardian" Mr. McKenna is unable to see in what way it affects the statement he made in the House of Commons on the 18th March, except in one point. In his speech the Home Secretary said that the patient's own doctor agreed with the prison doctors that there was no indication that the illness was due to the presence of food in the lungs. You now say that the doctor in question has written a statement denying that he "agreed with the prison doctors." Do you mean by this that the doctor asserts that the illness was due to food in the lungs? If so, Mr. McKenna would be obliged if you would let him see the written statement to which you refer. If the doctor does not make this assertion, then what the Home Secretary said in the House of Commons stands without any qualification.

Yours faithfully,
S. W. Harris.

(3) Sir Victor Horsley to the Secretary of State.

25, Cavendish-square, 4th May, 1913.

Sir,—On the 1st instant I wrote to you enclosing you a further report by Mr. Moullin and myself on the case of Miss Lenton, and I called upon you to withdraw the baseless attack you made (on March 18th to Parliament) upon my veracity in describing (on March 16th) the forcible feeding to which she was subjected by you.

You stated to the House of Commons that that description was "remote from the truth" and "nothing except hearsay, misunderstanding, and prejudice." You went further and insinuated (Hansard, col. 890) that we had had no communication with Miss Lenton, and therefore no credibility attached to our statements.

In our second report (the letter to the "Manchester Guardian"), which you now acknowledge having read, we prove that your statements were wholly contrary to fact.

We further proved two points: first, that our account of the forcible feeding was supplied us by Miss Lenton on more than one occasion, and that it was true in every particular; second, that your statement respecting her private doctor was not correct. As regards the first of these points, you say now you are "unable to see how our letter in the 'Manchester Guardian' affects the statement (you) made in the House of Commons."

Permit me to point out to you that paragraphs 2 and 4 of our letter directly prove your attack on our veracity to be as baseless as your insinuation was unworthy.

As regards your query respecting the second point, Miss Lenton's private doctor wrote to us as follows on 27th March, 1913:—

> "It is absolutely absurd in my opinion for the prison doctors to state that I agree with them in considering the forcible feeding had nothing to do with Miss Lenton's condition.[8] I believe it had.

This second point is, however, but a further instance of the incorrectness of your statements to the House of Commons, and I shall be glad to hear that you will publicly withdraw the imputations you made upon my veracity and in a place where, as you were well aware, I could have no opportunity of stating to your hearers the real facts.

Yours faithfully,
Victor Horsley.

(4) The Secretary of State to Sir Victor Horsley.

Home Office, Whitehall, S.W., 5th May, 1913.

Dear Sir,—The Home Secretary desires me to say, in reply to your letter of yesterday, that your representation of what he said in his speech in the House of Commons is so misleading that he almost doubts if you can have read the report of the speech. He said that you were not the doctor attending Miss Lenton, and that you were not speaking on the authority of her doctor when you asserted that her illness was due to the injection of milk into the lungs. It is clear from your own letters that you are not in a position to contradict either of these statements.

He stated that the patient's doctor had agreed that "her symptoms could in no way be attributed to the presence of food in her lungs." Your quotation from the doctor's letter in no way contradicts this statement, which was made by the doctor in question to one of the prison medical officers.

Mr. McKenna adheres to his speech, and is content to leave it to the judgment of any impartial reader.

Yours faithfully,
S. W. Harris.

(5) Sir Victor Horsley to the Secretary of State.

25, Cavendish-square, W., 8th May, 1913.

Sir,—In your letter of the 5th instant you assert that I have misrepresented what you said in the House of Commons.

As I quoted in inverted commas your actual words from Hansard and also the number of the column, your assertion is without meaning, so also is your further suggestion that you doubt if I "have read the report of the speech."

You then raise two points from your speech which, as they are only creations of your imagination and have nothing to do with me or m[illegible] letter of the 1st instant, are irrelevant to the present issue.

Finally, you suggest that the statement made to me by Miss Lenton doctor, and which I forwarded to you at your request, is not in contr[illegible]diction of a statement you say he made to the prison doctors, and yo[illegible] place in inverted commas. Miss Lenton's doctor in his letter to m[illegible] denies having made such a statement as that you attribute to him.

I must repeat my request of the 1st instant that you will publicl[illegible] withdraw the attack you made upon me in Parliament, where, as yo[illegible] are well aware, I had no opportunity of exhibiting your inaccuracies.

Yours faithfully,
Victor Horsley.

(6) The Secretary of State to Sir Victor Horsley.

Home Office, Whitehall, S.W., 12th May, 1913.

Dear Sir,—I am desired by the Home Secretary to acknowledge t[illegible] receipt of your letter of the 8th instant.

When words are quoted out of their context in such a way as [illegible] mislead, the insertion of inverted commas does not negative the mi[illegible]representation.

Mr. McKenna would again ask you to let him see the actual writte[illegible] statement made by the doctor who attended Miss Lenton.

Yours faithfully,
J. F. Henderson.

(7) Sir Victor Horsley to the Secretary of State.

25, Cavendish-square, W., 14th May, 1913.

Sir,—Your letter of the 12th instant is in no respect in answer t[illegible] mine of the 8th instant, nor have you in any of your letters attempte[illegible] to justify your conduct in attacking my veracity in the House [illegible] Commons on the 18th March, where I was not present.

You then accused Mr. Moullin and myself of making a "statemen[illegible] of the alleged facts ...... remote from the truth," &c.

Now, in order to evade your responsibility for this, you make a ne[illegible] insinuation, namely, that these words of yours, which I again take fro[illegible] Hansard, cols. 890 and 891, and place in inverted commas, do not car[illegible] their obvious and common meaning of an attack on our veracity.

If you wish to suggest that your quoted words do not convey wha[illegible] they appear to do, I must require you to forward me as soon as possibl[illegible] what you consider them to mean. As regards the statement of Mis[illegible] Lenton's doctor you ask for, I must remind you that I forwarded it t[illegible] you on the 4th instant.

I once more demand, as I did on the 1st instant, that you publicl[illegible] withdraw the cowardly attack you made on me in the House [illegible] Commons on the 18th March.

Yours faithfully,
Victor Horsley.

P.S.—Since writing my last letter I have discovered that while th[illegible] correspondence has been passing between us you have characteristicall[illegible] commenced a secret and further cowardly attack upon me at the Roya[illegible] College of Surgeons. This will be exposed in due course.

(8) The Secretary of State to Sir Victor Horsley.

Home Office, Whithall, S.W., 19th May, 1913.

Dear Sir,—Mr. McKenna desires me to acknowledge the receipt of your letter of the 14th instant, and to say that, as you fail to produce the written statement made by Miss Lenton's doctor, he must decline to continue the correspondence. Your letter of the 4th instant contained only an extract selected by you.

Yours faithfully,
J. F. Henderson.

(9) Sir Victor Horsley to the Secretary of State.

25, Cavendish-square, W., 20th May, 1913.

Sir,—Your letter of yesterday's date does not deal with the subject of this correspondence and is no answer to mine of the 14th instant to which it purports to be a reply. It is, therefore, only a subterfuge.

As for the rest of the private letter addressed to me by Miss Lenton's doctor and for which you now ask, it does not concern the inaccuracy of your assertion to the House of Commons, namely, that he agreed with you. The only part of the letter relevant to your assertion I have already forwarded to you and consists of his flat denial of what you attributed to him.

I may add, perhaps, that he also says you cannot possibly have known his opinion, as you never made any proper enquiry of him. I am not primarily concerned, as you know from my letters of May 1st, &c., with your misrepresentation of Miss Lenton's doctor's statements, but with your public attack on me in the House of Commons, where you knew I could not reply.

To my quotations of your words from Hansard you merely suggested that they had some other meaning than the ordinary interpretation.

I have received no answer to my question of May 14—namely, what possible meaning could your words "remote from the truth," &c., bear other than that what I said was not true. By not replying to my letters you will only compromise your honour and the liberal principle of free speech.

Further, I have not yet received from you the copy of the other charge you have secretly laid against me at the Royal College of [illegible]

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[7] This is the same letter as appeared in the "Pall Mall Gazette," as reprinted above.

[8] No such tatement is made by the prison doctors. *See* their reports.

No reply was sent to this letter.

(10) Sir VICTOR HORSLEY to the SECRETARY OF STATE.

25, Cavendish square, W., 18th May, 1913.

SIR,—*I request you to send me by return of post the letter in which* you have laid a charge against me addressed to the Royal College of Surgeons of England.
I am, yours faithfully,
VICTOR HORSLEY.

(11) The SECRETARY OF STATE to SIR VICTOR HORSLEY.

[illegible]

Yours faithfully,
J. F. HENDERSON.

EXTRACTS[10] from the SPEECH of the HOME SECRETARY in the HOUSE OF COMMONS on 18th March, 1913, relating to the Case of Lilian Lenton.

(Reprinted from Parliamentary Debates, Vol. 50, No. 7, Columns 890–894.)

Mr. MCKENNA: I have dealt with the case on general lines. Let me turn for a moment to the particular instance of Lilian Lenton. A letter quoted by the Noble Lord, and signed by Dr. Agnes Savill, Dr. Charles Mansell Moullin, and Sir Vic [illegible]

[illegible] "her doctor," and [illegible] the injection of milk [illegible] the three doctors to say so.

[illegible]

being a particularly strong looking woman, but I was unable to ascertain anything further about her on account of her refusal of an examination. She adopted the hunger strike tactics from the [illegible]

[illegible]

pain in the left side, and she then allowed me to examine her. I ascertained that she had been subject to attacks of pain in this [illegible]

[illegible]

when he reported her as convalescent. The doctor has agreed throughout with Dr. Forward and me that her symptoms could [illegible] lungs. [illegible] which [illegible] We [illegible] ty, to [illegible] vious history."

I am glad to give the House the full circumstances of this case in [illegible]

[illegible] doctors—

Sir A. MARKHAM It is an *ex parte* statement of one doctor. The [illegible]

[illegible] *ex parte* statement of the doctor.

Th[illegible] and [illegible]

[illegible] cardiac failure to occur sooner than in a person in robust health and without the above history. She was not tied into a chair, but a sheet was thrown around her body and she was restrained by [illegible]

[illegible] at the conclusion of the feeding, and the tube was withdrawn at once She did not fall against the wall, but was assisted to lie down on her mattress. There was no rattling, but quite quiet breathing. No pain was complained of or other complaint made [illegible] to the lavatory. She [illegible] any indication of illness.

[illegible]

[illegible] for a case of this kind to be made a test case. In order [illegible] atment [illegible] nanity [illegible]

BOOKS, ETC., RECEIVED.

[illegible] dents and Practitioners. [illegible] New York Ophthalmic [illegible] rout, M.D., Assistant [illegible] and Aural Institute. Price 18*s.* net.

BALE (JOHN), SONS, AN[illegible] Lorenz, Orthopædics in [illegible] nbula- Regierungsrat, [illegible] Saxl, torium for Ortho[illegible]

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[9] *See* (10) below.

[10] These extracts contain all that was said in the speech with regard to Lilian Lenton's illness and treatment in prison.

Assistant Surgeon in the Imperial University Ambulatorium for Orthopædic Surgery in Vienna. Authorised Translation from the German by L. C. Peel Ritchie, Ch.M., M.D., F.R.C.S. Edin., Price 7*s.* 6*d.* net.

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Historical Notes on the Borough and the Borough Hospitals. By R. M. Wingent. Price 3*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

AITKEN, R. Y., M.D. Glasg., F.R.C.S. Eng., has been appointed Medical Referee under the Workmen's Compensation Act to No. 4 Circuit.

BARBER, H. W., M.B. Cantab., has been appointed Medical Registrar to Guy's Hospital.

BARNES, H. PATRICIA, M.B., B.S. Lond., has been appointed House Physician at the East Suffolk and Ipswich Hospital.

BIRD, GEORGE WILLIAM HARVEY, M.A., M.B., B.C. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bridgwater Workhouse Infirmary.

BROCKBANK, E. M., M.D. Vict. Manch., M.R.C.P Lond., has been appointed Lecturer in Clinical Medicine in the University of Manchester.

BROMLEY, L., M.B., B.C. Cantab., has been reappointed Anæsthetist to Guy's Hospital.

CLEMINSON, F. J., M.C. Camb., F.R.C.S., has been appointed Assistant to the Ear and Throat Department at University College Hospital.

CUNLIFFE, E. N., M.D. Vict. Manch., M.R.C.P. Lond., has been appointed Lecturer in Clinical Medicine in the University of Manchester.

DARBY, W. S., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Harrow District of the county of Middlesex.

DAVIES, J. L., M.B., B.S., has been appointed House Surgeon at University College Hospital.

DINNICK, OSWALD TILSON, M.B. Tor., M.R C.S., L.R.C P. Lond., has been appointed Assistant Surgical Registrar to the Samaritan Free Hospital for Women London.

DORAN, S. S., L.D.S. R.C.S. Eng., has been appointed Lecturer in Dental Surgery and Pathology in the University of Manchester.

DOUGLAS, J. S. C., D.M. Oxon., has been appointed Lecturer in Pathology in the University of Manchester.

DYSON, WILLIAM, M.D. Vict., has been appointed Honorary Special Lecturer in Dermatology in the Victoria University of Manchester.

GARDINER, H., M.B., B.S. Lond., has been appointed Anæsthetist to Guy's Hospital.

HANBURY, LANGDON FULLER, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent to the West Ham Borough Asylum, Ilford.

HEATON, T. B., M.B. Oxon., has been appointed Medical Registrar to Guy's Hospital.

HUNTER, DAVID, M.A., M.B. Cantab., has been appointed Medical Superintendent to the Coppice Mental Hospital, Nottingham.

IREDELL, C. E., M.D. Lond., M.R.C.P. Lond., has been reappointed Surgeon in Charge of the Actino-therapeutic Department at Guy's Hospital.

MCNAIR, A. J., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist and Obstetric Registrar to Guy's Hospital.

MARSHALL, G., M.B., B.S. Lond., has been appointed Demonstrator of Physiology to Guy's Hospital.

PAGE H. M., F.R.C.S. Eng., has been reappointed Anæsthetist to Guy's Hospital.

POPE, H. B., M.D. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Clevedon District of the county of Somerset.

POULTON, E. P., M.B. Oxon., M.R.C.P. Lond., has been appointed Medical Registrar to Guy's Hospital.

RAMSBOTTOM, A., M.D. Vict. Manch., D.P.H., M.R.C.P. Lond., has been appointed Lecturer in Clinical Medicine in the University of Manchester.

REES, F. H., M.B., B.S. Lond., has been appointed House Surgeon at University College Hospital.

RITCHIE, JAMES, M.D. Edin., F.R.C.P. Edin., has been appointed to the new Chair of Bacteriology in the University of Edinburgh.

SANER J. G. B.C. Cantab., has been appointed Resident Surgical Officer to Guy's Hospital.

SHAW, JOHN CUSTANCE M.R.C.S., L.R.C.P. Lond., has been appointed Deputy Medical Superintendent to the West Ham Borough Asylum, Ilford.

SHIPWAY, F. E., M.D., B.C. Cantab., has been reappointed Anæsthetist to Guy's Hospital.

TODD, A. H., M.B., B.S. Lond., has been reappointed Anæsthetist and Surgical Registrar to Guy's Hospital.

TONKS, J. W., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant to University College Hospital.

WHITEHOUSE, BECKWITH, M.S. Lond., F.R.C.S. Eng., has been appointed a Hunterian Professor to the Royal College of Surgeons of England.

WILLIAMS, PENROSE LANYON WATKIN, F.R.C.S. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Consulting Surgeon to the Bridgwater Workhouse Infirmary.

WILLIAMSON, R. T., M.D. Lond., M.R.C.S., has been appointed Lecturer in Clinical Medicine in the University of Manchester.

WOODHOUSE, B., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

Vacancies.

For further information regarding each vacancy reference shoul made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £100 annum, with board and residence.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Resi Medical Officer and Junior Resident Medical Officer, both for months. Salary at rate of £60 and £40 per annum respectiv with board, residence, &c.

BENENDEN NATIONAL SANATORIUM, Kent.—Assistant Medical Offi Salary £120 per annum, with board, residence, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Sa £80 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surg Salary £75 per annum, with board, rooms, &c.

BIRMINGHAM, RUBERY HILL ASYLUM.—Junior Assistant Mec Officer. Salary £200 per annum, with apartments, bo laundry, &c.

BIRMINGHAM, SALTERLEY GRANGE SANATORIUM FOR CONSUMPT near Cheltenham.—Resident Medical Officer. Salary £300 annum, with board, &c.

BIRMINGHAM UNION, SELLY OAK INFIRMARY.—Resident Assis Medical Officer Salary £160 per annum.

BOOTLE BOROUGH GENERAL HOSPITAL.—Junior House Surgeon. Sa £80 per annum, with residence, board, and laundry.

BRENTWOOD, ESSEX COUNTY ASYLUM.—Two Assistant Medical Offic Salary in each case £200 per annum, with board, &c.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six mon Salary at rate of £100 per annum, with board, lodging, washing.

BRISTOL ROYAL INFIRMARY.—House Physician. Salary at rat £100 per annum, with apartments, board, and laundry.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—Resi Medical Officer, unmarried. Salary £120 per annum, with bo lodging, and laundry.

CANCER HOSPITAL, Fulham-road, S.W.—Senior and Junior H Surgeons for six months. Salary £80 and £70 per ann respectively. Also First Assistant to Research Departm Salary £350 per annum.

CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Junior Assist Medical Officer, unmarried. Salary £220 per annum, with ap ments, attendance, laundry, &c.

CANTERBURY MENTAL HOSPITAL, Canterbury.—Assistant Med Officer, unmarried. Salary £160 per annum, with board, lodgi washing, and attendance.

CARLISLE DISPENSARY.—Resident Medical Officer. Salary £150 annum, with apartments.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C.—Bacte logist. Salary £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physici Salary £90 per annum, with board, apartments, and laundry.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 annum, with residence and maintenance.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victo Park, E.—Two House Physicians for six months. Salary at ra of £75 per annum, with board, residence, and washing.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Physician. Sala £80 per annum, with board, residence, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—House Phy sician and Junior House Surgeon. Salary £90 per annum eac [illegible]

CRO [illegible] House Surgeon for six month [illegible] laundry, and residence.

DENBIGH, DENBIGHSHIRE INFIRMARY.—House Surgeon. Salary £1 per annum, with board, residence, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon unmarried. Salary at rate of £75 per annum, with board an laundry.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon Salary £120 per annum, with board, residence, and laundry.

DUBLIN, ROYAL VICTORIA EYE AND EAR HOSPITAL, Adelaide-road.—House Surgeon. Salary £40 per annum, with board and residence.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £65 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician and Assistant Casualty Officer for six months. Salary at rate of £75 per annum, with board, residence, laundry, &c. Also Assistant Surgeon to Out-patients.

EAST SUFFOLK, ADMINISTRATIVE COUNTY OF.—Two Assistants to County Medical Officer of Health. Salary £300 per annum.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, washing, and lodging.

EDMONTON INFIRMARY 77, Bridport-road, Upper Edmonton.—Second Assistant Medical Officer, unmarried. Salary £140 per annum, with residential allowances.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum, with board, apartments, and washing.

[illegible] ARY AND EYE INSTITU- [illegible] taff. Also Assistant [illegible] of £80 per annum, [illegible]

[illegible] se Surgeon. Salary [illegible] on. Salary £80 per [illegible] unmarried. [illegible] ing. [illegible] Assistant [illegible] rd, lodging, [illegible] tor. Salary [illegible] – Honorary Surgeon.

HA [illegible] Assistant House Surgeon. Salary [illegible]

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park street.—House Surgeon. Salary £50 per annum, with board and laundry. Also Assistant House Surgeon. Salary £45 per annum, with board and laundry.

JARROW BOROUGH EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Vacancy on Honorary Medical Staff. Also Locum Tenens for two months. Salary 4 guineas a week, with board, apartments, laundry, &c.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

[illegible] ool Medical Inspector.

[illegible] .—House Surgeon for six [illegible] with board.

LEICESTER, LEICESTERSHIRE AND RUTLAND LUNATIC ASYLUM, Narborough, near Leicester.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, board, and washing.

LIVERPOOL STANLEY HOSPITAL.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

LONDON FEVER HOSPITAL, Liverpool road, N.—Assistant Resident Medical Officer. Salary £150 per annum, with residence and board.

LONDON HOSPITAL MEDICAL COLLEGE.—Demonstrator of Pharmacology. Salary £200 per annum.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, attendance, washing, &c.

[illegible]

MA [illegible] ent Assistant [illegible] with rations, [illegible]

MERTHYR TYDFIL UNION WORKHOUSE AND PONTSARN SANATORIUM.—Assistant Medical Officer. Salary £150 per annum, with apartments, [illegible]

ME [illegible]

MI [illegible]

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE C [illegible] Salary £260 per annum.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road.—House Physician for six months. Salary at rate of £80 per annum, with board, residence, and washing.

ROTHERHAM HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing.

ROYAL EYE HOSPITAL, Southwark, S.E.—Junior House Surgeon for six months. Salary £50 per annum, with board and residence. Also Clinical Assistants.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.— [illegible] per annum, with board, lodging, washing, attendance, &c.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Assistant House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD [illegible] annum, [illegible]

SOMERSET [illegible] £300 per annum.

[illegible] AL.— [illegible] num, [illegible] ESTOE [illegible] , with [illegible] dical [illegible] road, [illegible]

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with boa [illegible]

TRURO, ROYAL CORNWALL [illegible] ied. Salary £100 per annum, [illegible]

UNIVERSITY COLLEGE HOS [illegible] OF BACTERIOLOGY.—Demonstrator.

VIRGINIA WATER, SURREY, HOLLOWAY SANATORIUM HOSPITAL FOR THE INSANE.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, laundry, and attendance.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, [illegible]

[illegible] t House [illegible] —Senior [illegible] rtments, and washing.

WILTS COUNTY COUNCIL.—County School Dentist. Salary at rate of £250 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House [illegible] with board, rooms, and laundry.

[illegible] ow-road.—Honorary [illegible] ician. Salary £120 [illegible]

[illegible] Assistant Medical [illegible] with board, apart- [illegible]

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Hoo, in the county of Kent, and at Kidsgrove, in the county of Stafford.

Births, Marriages, and Deaths.

BIRTHS.

JEUDWINE.—On July 9th, at Brooklands, Filey, the wife of Captain W. W. Jeudwine, I.M.S., of a son.

McLEAN.—On July 12th, at Bay View, Rushbrooke, co. Cork, Ireland, the wife of W. McLEAN, M.R.C.S., L.R.C.P. Lond., of a daughter.

MARRIAGES.

DIXON—ALLEN.—On July 5th, at Christ Church, Sutton, Surrey, Robert Halstead Dixon, M.B. Lond., of Ealing, to Edith Kate, only daughter of the late George Allen and of Mrs. Allen, Farringford, Sutton, Surrey.

HALL—MEIN.—On July 10th, at Jesmond Parish Church, Newcastle-on-Tyne George Hall, M.D., B.Sc., M.R.C.P., of Newcastle-on-Tyne, to Margaret, elder daughter of Mr. N. and the late Mrs. Mein.

DEATHS.

JOHNSON.—On July 8th, after a long illness, at Talbot road, Bayswater, W., William Alfred Johnson, M.D., L.R.C.P., L.S.A. Lond., aged 84 years.

MABERLY.—On July 6th, at Kingsway, Burnham, Somerset, G. F. Maberly, M.R.C.S., in his 90th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

ESPERANTO AND THE INTERNATIONAL MEDICAL CONGRESS.

The organising committee of the Seventeenth International Congress of Medicine in London has granted the use of the Geological Laboratory in the Royal School of Mines for the meetings of the Universal Esperanto Medical Association (Tutmonda Esperanta Kuracista Asocio). The meetings will be opened by a short series of lectures in many languages on Esperanto and the Medical Profession. Subsequently only Esperanto will be used. Intimations that papers will be read have already been received from Professor G. Sims Woodhead, Dr. Nemser (St. Petersburg), Dr. Sidlovskij (Moscow) (Result of Inquiry Concerning Backward Children in Moscow Schools), Dr. W. Robin (Warsaw) (On the Sounds of the Duodenum), and Mr. F. W. Alexander (London) (Sea Baths and Electricity as Health Restorers). Other papers are expected. The London Esperanto Club has kindly invited all medical men interested in Esperanto to a conversazione and concert in St. Bride's Institute, Ludgate-circus, on Friday, August 8th, at 7.45 P.M. Those intending to be present at the meeting should send their names to the president of the association, Mr. G. Jameson Johnston, 13, Lower Fitzwilliam-street, Dublin, as soon as possible. The usual annual congress of the T.E.K.A. will take place in the University of Berne in the last week of August during the Ninth Universal Esperanto Congress.

THE TUBERCULOSIS CRUSADE.

Since education of the public is so important a factor in the crusade against tuberculosis, every well-directed effort to disseminate practical knowledge of the subject is commendable. Some Factors in the Fight with Tuberculosis is the title of a paper read by Dr. J. King Patrick, assistant medical officer of health, county borough of Leicester, at a meeting at Hampstead, now published as a pamphlet by the North-Eastern Newspapers, Limited. In it Dr. Patrick discusses in considerable detail the bearing on consumption of housing, factories and shops, schools, food, milk, and milk products. He gives a modification of Sir Robert Philip's well-known diagram illustrating the administrative control of tuberculosis, and discusses notification, disinfection, dispensaries, sanatoriums, hospitals for advanced cases, farm colonies, and the coordination of preventive and curative measures.

BEATING A RETREAT.

A correspondent in British Columbia writes:—

> The slang of a new place is unintelligible and often disconcerting. In Western Canada the expression to "beat it" or "hit it" means "to go away," and is really elliptical. You "beat" or "hit" "the grade," which is the "right of way," which is the railway track, used as the road in a country with no turnpikes, and you "beat" or "hit" the grade with your feet. This usage seriously confused lately a man newly out from England. There had been a scarlet fever case in his family, and the health officer was explaining disinfection by formalin and permanganate. "You put the crystals in a bucket," said he, "pour the formalin over them, and then you beat it, quick." Everyone who is familiar with this method and the great volume of irritating gas that comes off at once will understand why the new-comer when next he met the doctor hoped the disinfection had been thorough. "But I couldn't do everything you told me. I had a piece of wood to beat it with as you said, only I couldn't stay, and had to run."

PUBLIC HEALTH IN PALESTINE.

Mr. P. J. C. McGregor, H.M. Consul at Jerusalem, in his annual report, observes that the year 1912 was a fairly average one as regards health. With reference to epidemic diseases of children, such as measles, scarlet fever, epidemic diarrhœa, and whooping-cough, the year was probably better than usual, as none of these diseases spread widely. Towards the close of the year there was a slight epidemic of typhus fever in Jerusalem, and a few cases of relapsing fever in the neighbourhood of Bethlehem. The only disease which visited the land in severe epidemic form was dengue fever. This was very prevalent along the coast during the summer months, but in September found its way inland to the mountain region, where it visited in turn Jerusalem, Bethlehem, Hebron, and even the east of the Jordan. During October and November it was very widespread among the poorer classes of Jerusalem, probably quite 50 per cent. of the poor within the city walls being attacked. It is over 20 years since this disease has been so prevalent in the mountain lands, for usually its ravages are confined to the low-lying coast. Though painful and debilitating, this illness appears to have a very low mortality. The ever-present malarial fevers of Palestime were, during the autumn, the subject of a very thorough and exhaustive investigation by Professor Mühlens, of the School of Tropical Medicine at Hamburg.. He confirmed the observations of the local medical faculty with regard to the extreme prevalence of malarial fevers during August, September, October, and November in Jerusalem, and he showed that during those months about 75 per cent. of all malarial fevers were cases of subtertian (tropical) malaria. Among the day pupils in some of the schools—especially those for Jewesses—he found that 30 per cent. of the pupils actually attending the schools had malarial parasites in the blood. A few cases of hæmoglobinuria (blackwater) fever were also observed and investigated. Measures are now set on foot to combat these and other dangers to the health of Palestine.

Communications not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

Monday.—4 P.M., Dr. H. MacCormac: Clinique (Skin). 5.15 P.M., Lecture:—Dr. A. G. Buchanan: Psycho-therapy.

Tuesday.—4 P.M., Dr. E. Wynter: Clinique (Medical). 5.15 P.M., Lecture:—Mr. R. Warren: Operative Treatment of Fractures.

Wednesday.—4 P.M., Mr. L. Mummery: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. D. Windle: Respiration and Pulse in [illegible] (lantern demonstration).

[illegible] ıg: Clinique (Surgical). 5.15 P.M., [illegible] Convulsions and their Mental Significance.

Friday.—4 P.M., Mr. R. E. Bickerton: Clinique (Eye). 5.15 P.M., Lecture:—Dr. W. Wingrave: Bacteriuria.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: *Demonstration of Cases in Wards.* 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Addison: Clinical.

Tuesday.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin. 5 P.M., Lecture:—Mr. Addison: Clinical.

Wednesday.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Mr. Addison: Clinical.

Thursday.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Orthopædics. Mr. Dunn: Diseases of the Eye.

Friday.—10 A.M., Dr. Robinson: Gynæcological Operations 2 P.M., Medical and Surgical Clinics. Mr. Baldwin: Operations. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

Saturday.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology [illegible] ncan).

Tuesday.—Cli[illegible] Out-patient (D[illegible] ans), Gynæcolog[illegible] tient (Dr. A. J. Whiting).

Wednesday.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

Thursday.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—[illegible] Surgical (Mr. Carsc[illegible]

Friday.—2.30 [illegible] (Dr. A. G. [illegible] Brooks). [illegible] Pathology [illegible]

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

Monday.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.——2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

Tuesday.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.——2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir Malcolm Morris: Skin.

, Dr. F. Lang-
A.M., Mr. R. E.
Mr. Choyce;

vens: Medicine.
A.M., Dr. G. Holmes;
n, Dr. H. MacCormac;
rations. 2.15 P.M., Sir
P.M., Mr. L. McGavin;
Surgery.
SAT

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture: The Hæmorrhages of Pregnancy—Abortion. 11 A.M., Examination of Patients and Minor Operations.
TUESDAY.—10 A.M., Major Operations. 4 P.M., Class in Gynæcological Diagnosis.
WE

11 A.M.,
M., Class

For further particulars of the above Lectures, &c., see Advertisement Pages.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. *It is unnecessary to issue the lists of all these functions* week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced:—

April 26th–Nov. 5th (Ghent).—International Exhibition.
May 31st to October (London, Earl's Court).—Imperial Services Exhibition.
" 21st–24th (London).—British Pharmaceutical Conference.
" 22nd–25th (Brighton).—Eighty-first Annual Meeting of the British Medical Association.
Aug. 1st–3rd (Ghent).—Congress against the Adulteration and Deterioration of Foodstuffs.
" 1st–5th (Brussels).—Third International Conference on Cancer.
" 3rd–8th (London).—Sixth International Dental Congress.
" 4th and 5th (London, Caxton Hall).—English-speaking Conference on Infant Mortality.
" 6th–12th.—(London).—Seventeenth International Congress of Medicine.
" 20th–26th (Ghent).—Third International Congress of Neurology and Psychiatry.
" 25th–30th (Buffalo).—Fourth International Congress of School Hygiene.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial Staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their journals and an earlier delivery than the majority of Agents are able to effect.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 16th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks
July 10	29 83	SSE.	0 03	109	68	57	58	58	Overcast
" 11	29 94	N.	...	107	69	55	56	59	Cloudy
" 12	30·02	S W.	...	108	72	58	60	65	Cloudy
" 13	30 01	S.W.	...	96	69	57	59	63	Overcast
" 14	29 96	W.	0 50	97	72	57	60	64	Cloudy
" 15	29 85	N.E.	0·25	85	62	61	55	55	Raining
" 16	30 00	N.	...	92	65	55	58	61	Cloudy

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Address in Medicine

ON

SOME ASPECTS OF INTERNAL SECRETION IN DISEASE.

Delivered at the Eighty-first Annual Meeting of the British Medical Association,

By GEORGE R. MURRAY, M.A., M.D. Cantab., D.C.L. Dunelm, F.R.C.P. Lond.,

PROFESSOR OF SYSTEMATIC MEDICINE IN THE VICTORIA UNIVERSITY OF MANCHESTER; PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY.

Mr. President, Ladies, and Gentlemen,—On this occasion it has often been the custom to take a general survey of some branch of medicine and to endeavour to indicate the trend of the teaching of the day and its practical application in some particular direction. In this way an address may serve the useful purpose of reviewing recent progress and also, perhaps, of checking too exuberant hopes which at times are apt to outrun sound judgment. So much that is new is constantly being brought to our notice that it becomes increasingly difficult to estimate its bearing on our daily work. In our anxiety to advance we are in danger of over-estimating the value of what is new and untried at the expense of what is old and well known, whereas we should be—

> First to face the truth and last to leave old truths behind.

During the last five and twenty years more and more interest has been taken in the functions and diseases of the ductless glands as their importance has gradually been recognised. Previous to this period, although the structure of these bodies had been described, very little was known as to their functions. Thanks to the efforts of a large number of workers our knowledge of these organs has been largely increased, and the results of their labours have now been brought within the reach of all in the valuable works recently published by Biedl, by Swale Vincent, and by Falta.

It would, I venture to think, be worth while to take a brief survey of a portion of this large field of inquiry and to consider some aspects of internal secretion in disease. It is so easy to speculate as to what may be the function of a ductless gland and so difficult to find out what it really is, that we are apt to fail to distinguish between what has really been ascertained and what is still largely theoretical. This is most unfortunate, as rash speculation on the function of a gland may only lead to erroneous conclusions as to the pathology of its morbid states, and in the end impede rather than accelerate our progress towards the acquisition of reliable methods of treatment. The great importance of bio-chemistry in pathology is now being more fully recognised, and we are gradually learning that many diseases are due to the failure or perversion of normal chemical processes in which the ductless glands play an important part.

The Functions of the Ductless Glands.

It is essential to have a clear conception of what secretion really is, and to define the difference between external and internal secretion, as the latter term has been used with considerable latitude by some writers. It was pointed out by Johannes Müller in 1844 that secretion consisted of the active formation of a definite chemical substance by an organ for further service in the body, whereas excretion was simply the process of removal from the blood of substances already formed, but of no further use, and therefore to be got rid of as soon and as easily as possible. This hard-and-fast line cannot always be drawn, but it serves as a general means of distinguishing secretion from excretion. Claude Bernard in 1855 [illegible] be either extern [illegible] exit. An extern [illegible] leaves the gland by a duct and passes out to a free surface. An *internal* secretion, on the other hand, passes from the gland, either directly or indirectly, into the blood, by which it is conveyed to its destination. Bernard, however, regarded all the products which pass into the blood stream from the organs as internal secretions. We now, however, res the name for the useful products of the activity of certa glandular cells which pass into the blood stream in orde to play some definite part in metabolism. Thus we do not [illegible] by the bone marrow, [illegible] part of the blood, are [illegible] substances which are [illegible] as albumin from the *alimentary canal or sugar formed from hepatic glycogen,* are not internal secretions in the strict sense of the term.

The mode of action of the internal secretions is still obscure, but our knowledge of their effects is gradually expanding. Generally speaking, ductless glands act on other tissues at a distance by means of substances, for which Starling has suggested the name hormones, which are conveyed by the blood stream to the cells for which they are destined. The cells of a gland have the property of forming one or possibly more hormones, each of which has the power of exciting a definite form of chemical activity in those cells for which it has a special affinity. It must, however, be remembered that there may be substances formed which, instead of activating, may control or inhibit chemical action. [illegible] n of "inhibi- [illegible] normal meta- [illegible] at its proper level by an adequate supply of hormones from all glands which secrete internally. This conception of the mode of action of these glands serves to indicate how complex and variable in composition is that important fluid tissue, the blood, which thus serves as a carrier of so many important bodies. We do not know in what form the hormones are conveyed. They may be in solution or in suspension in the blood plasma, or they may be attached in some way to the red or to the white corpuscles. Whatever the actual method of convection may be, we know that the normal blood carries this out efficiently. We do not know how far this function of the blood may be affected by such changes as occur, for example, in leukæmia and in other diseases which alter its composition.

The function of a ductless gland may be affected by disease in different ways. Progressive atrophy gradually diminishes and finally cuts off the supply of its particular secretion, while some special forms of hypertrophy are accompanied by an increase in the amount of secretion which may or may not be normal in composition. We have thus in the case of each gland to consider the results of changes in both the quantity and the quality of its secretion.

The most important ductless glands are the thyroid, parathyroid, pituitary, and suprarenal glands. Other glands, such as the pancreas, the generative glands, and possibly others, supply both an external and an internal secretion. In these glands, however, we find that the two forms of secretion are supplied by different sets of cells, and that one set may fail while the other continues active in function. Thus in the generative glands spermatogenesis may cease while internal secretion persists.

The Thyroid Gland.

The effects of disease upon internal secretion can be observed most easily in the case of the thyroid gland, in which the structure is simple and the secretion can be seen stored in the alveoli surrounded by the epithelial cells by which it has been formed. The secretion is stable, and is easily obtained from the healthy gland in an active form as *either a liquid extract or a dry powder.*

THYROIDAL INSUFFICIENCY.

When this gland atrophies, its secretion gradually fails and the characteristic symptoms of myxœdema slowly develop. The typical symptoms of the malady are so well known that no description is necessary, but it is remarkable that in spite of the striking appearance presented by anyone suffering from this disease, well-marked cases are still to be seen in public places going about apparently unrecognised and untreated. The slight and early forms of the malady may easily be overlooked. In some of these cases the filling up of the lines of the face and the pink flush on the cheeks impart a fictitious appearance of good health which deceives all but the trained observer. In middle-aged women who complain of lassitude, chilliness, and other subjective sensations associated with slight dryness of the skin, some loss of

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hair; and a little thickening of the subcutaneous tissues—to mention but a few of the signs of slight thyroidal insufficiency—it is well to remember that a partial atrophy of this gland may be the cause of the symptoms. A course of treatment by thyroid extract will soon be followed by a steady improvement if the diagnosis is correct. In some cases the atrophy appears to become arrested at an early stage and to progress no further for a long period. In one of my cases, in which enlargement and induration of the gland were associated with diminished functional activity, slight symptoms of myxœdema had been present for as long as ten years. In these cases a portion of the gland is still able to produce a small but insufficient supply of secretion. It is possible, though actual proof is still lacking, that in some of these cases the surviving portion of the gland may, after a time by a process of compensatory hypertrophy, be able to supply a sufficient amount of secretion to remove the symptoms. In order to settle this question careful observations continued for a long period are required so as to ascertain if a slight case of myxœdema ever does recover spontaneously, or if after the symptoms have been removed by treatment it is possible for the patient to remain in health when the treatment is *stopped*. It is to those engaged in general practice that we must look for a solution of this and other similar interesting clinical problems. It is much to be desired that more records of disease as seen from day to day in private practice were available. As an illustration of their value I would refer to the many interesting observations made by Mr. Arthur Maude of Westerham in the cases of Graves's disease in his own practice.

It appears that a considerable amount of destruction of the secreting tissue may take place without producing symptoms, but that beyond a certain point very little further change may induce well-marked symptoms. In a case of ligneous thyroiditis, recently reported by Mr. Southam and myself, the removal of a portion of the diseased gland, in which only the remains of a few glandular alveoli were found on microscopical examination, was quickly followed by the onset of myxœdema. In secondary myxœdema induced by thyroidectomy the symptoms are the same as in the primary form, but naturally the onset is more acute and the symptoms more severe, owing to the sudden and possibly total loss of the secretion. In cretinism we see the dire results of lack of thyroid secretion in childhood, and are able to realise what an important function is carried out by the thyroidal hormones in stimulating normal bodily growth and mental development during the early years of life.

Careful study of the clinical symptoms of myxoedema and cretinism and of the results of total thyroidectomy in man and in animals of different species and at different ages has furnished us with a great deal of information as to what occurs when the supply of thyroidal hormones either partially or entirely fails. Metabolism is diminished and less albumin is required. The interchange of gases is diminished, so that less oxygen is absorbed and less carbon dioxide is given off than in health. The efficiency of the heart is impaired, and in time the myocardium undergoes degenerative changes. The normal growth and activity of the skin with its glands, and of the nails and hair, are notably lessened. In young subjects growth and mental development are retarded or arrested, and no development of the reproductive system takes place at puberty.

In the case of failure of the thyroid gland in man we are able to supply all the necessary hormones in an active state from one of the lower animals, and can regulate the supply to such a nicety that perfectly normal health may be enjoyed for many years by a person whose thyroid gland has entirely disappeared, and who would otherwise, if still living, be existing as a complete invalid in "the gloomy calm of idle vacancy" of advanced myxœdema.

Historical Review.

It may be of historical interest to briefly review the steps by which our present knowledge of the function of the thyroid gland has been attained. Only 40 years ago Sir William Gull gave us the first account of myxœdema under the name of "a cretinoid state supervening *in adult life* in women," by which he indicated its relationship to sporadic cretinism already described by Hilton Fagge. Four years later W. M. Ord published five cases, in one of which atrophy of the thyroid gland had been found by Professor W. S. Greenfield, and gave the name of myxœdema to th disease. The symptoms which follow total thyroidectomy were described by J. L. Reverdin in 1882 and again in the following year by Professor Kocher, of Berne, as cachexia strumipriva. Soon after this, J. L. and A. Reverdin, recognising the likeness of the condition to myxœdema, suggested the name *myxœdème post-opératoire.* In this country Sir Felix Semon, realising the remarkable clinical similarity between myxœdema and cachexia strumipriva, suggested that both alike were due to loss of function of the thyroid gland. At this point the further investigation of this relationship, important alike to physicians and surgeons, was taken up by a special committee of the Clinical Society of London. The report of this committee will ev serve as a guide to the method in which such investig tions should be made. The experimental work of S Victor Horsley, together with the clinical and pathologic material collected by the committee, clearly demonstrate that cretinism, myxœdema, and cachexia strumipriva a due to loss of the thyroid gland by disease or removal.

The Treatment of Thyroidal Insufficiency.

The foundation of our present method of treatment ha even then been laid by Schiff, who had shown that successf transplantation of a thyroid gland in the dog sufficed to pr vent the development of the symptoms which usual followed its removal. This observation was confirmed b von Eiselsberg. In 1890 Sir Victor Horsley drew attention these important experiments, and suggested that thyroi grafting should be tried as a means of arresting the progre of myxœdema. The adoption of this suggestion was followe by remarkable diminution in the symptoms. Owin however, to the failure of the graft the improvement w temporary. In Bettencourt and Serrano's case the improv ment began the day after the operation, and, as they pointe out, was due to the immediate absorption of the contents the grafted gland. These observations led me to the con clusion that good results would be obtained by the continue internal administration of the secretion in the form of a extract of the gland. In order to test this I dissected out the thyroid gland of a sheep as soon as it was killed, an prepared the glycerine extract, which is now official und the name liquor thyroidei. This was periodically injecte beneath the skin of a patient, who fortunately was willing allow the experiment to be tried. It is now just 22 year since the successful result of that treatment was com municated to the annual meeting of this Association held at Bournemouth in 1891. Although the hypodermic method of administration served its purpose in demonstrating the efficiency of the remedy and conclusively proved that the function of the thyroid gland was to supply an internal secretion, in actual practice it had many drawbacks, which fortunately were removed the following year, when Dr. Hector Mackenzie and Dr. E. L. Fox in this country and Howitz in Copenhagen showed that the extract was equally active when given by the mouth.

It may be mentioned that this first case of myxœdema treated by thyroid extract is still alive and well, a condition of health being maintained by a dose of ten minims of liquid thyroid extract each week day, or 6½ oz. in the course of the year. Less than a gallon of thyroid extract in all has therefore maintained her in health for 22 years. No variation of the dose has been found necessary. In some cases the best results can only be obtained by adjusting the dose from time to time according to the physiological requirements in a manner which some patients learn to do accurately for themselves. So complete is the recovery that, provided the climacteric period has not been reached, the functional activity of even the reproductive system may be completely restored. For example, I recently saw a woman aged 60, in whom myxœdema had developed 11 years before. Recovery took place under treatment, and 4½ years later she bore a healthy child after a normal pregnancy. The whole function of the thyroid gland can therefore be carried out in man by a constant and adequate supply of thyroidal hormones obtained from one of the lower animals in the form of thyroid extract for any required length of time after the natural supply has failed owing to destructive disease of the gland.

The treatment of cretinism is more difficult, as the dosage of the extract requires a nice adjustment to the varying physiological requirements of childhood in order to secure the best results. When treatment is started early in life and is carefully regulated, all the signs of cretinism may disappear and the child develop both mentally and physically in a normal manner. One such successful result is in the case of the daughter of a medical friend, where the dosage has been most carefully regulated, almost from day to day, by slight signs which have been found to indicate when larger or smaller doses are required. In many cases, however, mental development is slow, while bodily growth is rapid. It appears to be specially desirable that in countries where cretinism is endemic adequate continuous treatment should be supplied by the State for all cases from the earliest age onwards.

The Use of Thyroid Extract in Various Conditions.

Thyroid extract naturally finds its fullest opportunity in [illegible] of thyroidal [illegible] -ty of stimu- [illegible], the extract has also been found useful in conditions in which there is no definite evidence that the normal supply of hormones is deficient. The marked emaciation caused by excessive [illegible] ates its employment in [illegible] are obtained, especi- [illegible] he same time. Good results have also been recorded in the treatment of rickets, rheumatoid arthritis, and nocturnal enuresis. The rapid improvement which takes place in the condition of the skin of cases of myxœdema during treatment induced Dr. Byrom Bramwell to employ the extract with conspicuous success in the treatment of psoriasis and other cutaneous diseases. Sir Malcolm Morris has recently dealt fully with the relationships of the internal secretions to dermatology, and has shown how important a part is played by the glandular extracts in the modern treatment of diseases of the skin.

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HYPERACTIVITY OF THE THYROID GLAND.

Not only may disease be due to failure of glandular secretion, but it may be the result of the opposite condition of abnormal activity. The secretory activity does not necessarily depend on the size of the gland. Very great enlarge- [illegible] forms of [illegible] he blood, [illegible] may be [illegible] Slight enlargement may take place in response to special physiological requirements; thus the pituitary gland enlarges during pregnancy, and the thyroid gland at puberty and during menstruation. This physiological enlargement of the thyroid during adolescence may, however, become pathological in the form of a simple parenchymatous goitre. In the early stages this will subside when the demand for more than the usual supply of hormones is made good in the form of suitable doses of thyroid extract by the mouth. Before undertaking this treatment in these cases it is of great importance to make sure that no symptoms of hyperthyroidism are present, or a mild incipient case of Graves's disease may unwittingly be aggravated. The results of hyperactivity of the thyroid gland are seen in the various grades of exophthalmic goitre. We are still anxiously seeking for an explanation of the development of this morbid activity, which comes on sometimes rapidly, sometimes slowly, persisting, it may be, for a few months only, or continuing unabated for years. If we knew what causes the characteristic change in the thyroid gland in consequence of which it pours such a flood of secretion into the circulation, we should be in a much better position to treat the disease in a rational manner.

Exophthalmic Goitre.

As is well known, the symptoms of Graves's disease are the reverse of those of myxœdema; the organs and functions which in myxœdema are sluggish and inert, for want of the normal hormones, in Graves's disease are worked at high pressure owing to their excessive supply, and the symptoms of the disease are but the outward expression of this glandular hyperactivity. The respiratory interchange of gases is increased by 50 per cent. Magnus Levy has estimated that the amount of oxygen absorbed may even be increased by as much as 70 or 80 per cent. The increased caloric production is compensated for by heat regulation, so that the rise of temperature in Graves's disease is only slight. Sugar toleration is reduced and glycosuria may occur. The relationship of Graves's disease to diabetes will, however, be referred to again later. There are some interesting results of this increased metabolic activity which are appreciated by patients themselves and may serve as a guide to treatment in some cases. Those who have been previously liable to chilblains lose them entirely during an attack of Graves's disease; they also acquire for the time being an almost complete immunity to ordinary colds, so much so that a return of a liability to chilblains or to ordinary colds is often an indication that the hyperactivity of the thyroid is diminishing and that the patient is improving.

Another interesting point is the relationship between Graves's disease and tuberculosis. Speaking from personal experience only, I have found that pulmonary tuberculosis rarely occurs in uncomplicated cases of exophthalmic goitre, and when it does it is usually limited in extent and activity. I say uncomplicated because in two interesting examples of pluriglandular hypersecretion, to which further reference will be made, pulmonary tuberculosis was present. The following experience also lends support to the view that a condition of hyperthyroidism has some influence on tuberculous infections. In a severe case of Graves's disease, in which only physical signs of bronchitis could be discovered, tubercle bacilli were found in the sputum. It was, for reasons I need not now detail, decided that a portion of the thyroid gland should be removed; this was successfully carried out by Dr. Mamourian, with whom I saw the patient. For a fortnight all went well; at the end of that period the tuberculosis became active, and the patient died a month after the operation from acute tuberculosis of the lungs. This experience shows that in these uncommon cases thyroidectomy should not be undertaken. This apparent resistance to infection is probably due to the increased activity of the metabolism of the tissues rather than to any direct action of the thyroid secretion, for tubercle bacilli can actually grow in the thyroid gland itself, as is shown by the presence of miliary tubercles and of caseous tuberculous nodules in it in some cases of tuberculosis.

The Crises occurring in Graves's Disease.

One remarkable feature of the clinical course of Graves's disease is the variability of the symptoms, which in its most marked form is evidenced by the occurrence of crises. We see in some cases general crises of acute thyroidism—that is to say, periods during which almost all the symptoms are aggravated for the time being. The pulse is greatly increased in frequency up to 200 or more per minute; there are great nervous agitation and restlessness, increased tremor, sweating, vomiting, and diarrhœa. These attacks are alarming and dangerous, and in some cases prove fatal within a few days. These general crises are evidently due to a sudden increase in the activity of the thyroid, resulting in the discharge of a larger amount of secretion into the blood stream.

Still more interesting is the occurrence of local crises during which, perhaps, a single symptom becomes greatly increased, or one organ or system alone is suddenly thrown into a state of extraordinary activity. Thus some patients are liable to cardiac crises, during which, for no apparent [illegible] cation of an ice-bag to the præcordium. In other cases we see cutaneous, bronchial, gastric, or intestinal crises, characterised by profuse sweating, bronchorrhœa, vomiting, or diarrhœa, as the case may be. The occurrence of these localised forms of hyperactivity suggests that possibly thyroid secretion is polyvalent, and contains different hormones which are capable of activating different organs. One may activate the sweat glands and hair follicles, another the heart, another the bronchial mucous membrane, and so on. In Graves's disease it would appear that there is possibly not only an increase in the amount of thyroidal secretion formed and absorbed, but that in some cases the proportion between the different ingredients of the secretion may vary in different cases and at different times in the same case. A sudden temporary increase in the substance which activates the skin, for example, would account for a cutaneous crisis, whereas a general crisis would be caused by an increase in the secretion as a whole.

Action of Thyroidal Hormones on the Heart.

We are specially in want of further information as to the mode of action of the thyroidal hormones on the heart. The disastrous result of their excessive action is only too apparent in the dilated and degenerated hearts of some advanced cases of Graves's disease in which death occurs from some sudden cardiac failure. In some mild cases of hyperthyroidism the cardiac symptoms are the most striking, and have given rise to the term "goitre-heart." Under this name, however, two separate conditions have been included. One variety is thyrotoxic in origin and is due to excessive thyroidal secretion, the effects of which are shown chiefly by enlargement of the left side of the heart. The other variety is mechanical in origin, and attention appears to have been drawn to it first by Rose, of Zürich, in 1877. This form of goitre-heart is due to the tracheal stenosis caused by a goitre. It is the result of the prolonged dyspnœa and results in enlargement chiefly on the right side of the heart. It has been shown experimentally by H. Ströpel that tracheal stenosis experimentally produced in cats causes an enlargement of the heart. It is this latter form of goitre-heart which is a source of danger in operations on cases of goitre with prolonged tracheal stenosis. In certain cases the two forms are probably combined, as it is quite possible to have a goitre which both compresses the trachea and also over-secretes. Fortunately, in the great majority of cases of Graves's disease there is no compression of the trachea.

We do not know in what manner the thyroidal hormones produce the rapid rhythm of the heart which is so constant a symptom in Graves's disease. We can produce the tachycardia in a healthy subject by giving large doses of thyroid extract, which, however, does not appear to influence the ventricular rhythm directly. I have recently had under my care in the Manchester Royal Infirmary a case of complete heart-block in which polygraph tracings showed that while the auricles were beating 68 times a minute, the ventricles had an independent rhythm of 28. The radial pulse only varied between 21 and 28 during the whole time he was in the hospital. In this case the continued administration of three 5-grain thyroid tabloids a day did not produce any acceleration of either the auricular or the ventricular rhythm. Dr. James Mackenzie has, however, found that other conditions which usually accelerate the pulse in health, such as excitement or alcohol, have scarcely any effect upon the ventricle in cases of heart-block. I have not come across any record of a case of heart-block in a patient suffering from Graves's disease. Such a combination, if it ever occurs, would be of great interest.

The Treatment of Graves's Disease.

The considerable number of cases of Graves's disease in which partial or complete recovery takes place shows that the diseased gland is capable of returning to a normal state of activity, but we have still to ascertain precisely under what conditions this favourable result is obtained. General hygienic, medicinal, and electrical treatment is followed by gradual improvement and recovery in many cases, but we much require some more rapid means of treatment. The application of suitable doses of X rays to the enlarged thyroid gland has in some of my cases proved to be of great value. The gland gradually diminishes in size, and the other symptoms subside. Atrophic changes in the secretory epithelium and both interstitial and extracapsular fibrosis appear to be induced by the action of the rays. These adhesions between the capsule and the surrounding structures are, however, a disadvantage should a subsequent thyroidectomy be required. In two of my cases in which X ray treatment was not successful one lobe of the gland was excised. Microscopical examination showed no fresh change in one, but a distinct increase in the interalveolar connective tissue of the other. These changes are slow in development, so that the full effect of the treatment is not obtained until some months have elapsed. In favourable cases some 15 to 20 weekly doses of the rays have been sufficient to bring about great improvement or practical recovery, but in others only slight improvement has followed a similar course of treatment. It is worth while to persevere with X ray treatment for as long as a year if slow but satisfactory progress is being made. We have, however, still much to learn as to the most appropriate dosage and mode of application of this valuable method of treatment.

The late Dr. Gibson, whose early death we so greatly deplore, in his eloquent address last year described the remarkable improvement he had observed after the employment of suprarenal extract, which he considered "to have no rival in the management of this affection." Useful as this remedy is in some cases, my experience of its use has unfortunately not been so favourable as his. The use of a special cytotoxic serum which would induce an atrophy of the thyroid gland has not been satisfactory. Unfortunately, a cytotoxic serum is not altogether selective in action, and induces changes in the cells in other organs as well as in the thyroid gland itself. Thyroidectin, though useful in some cases, is not constant in its effects. Rodagen is of doubtful utility, though the fresh milk of a thyroidless goat is useful in some cases, but it may be difficult to obtain one of these goats, and there is the trouble of maintaining the animal during the treatment. The results of surgical treatment in selected cases are satisfactory, but it is to be remembered that there are still considerable risks to be faced, and that recovery does not follow in all cases. I recently saw a lady who has had exophthalmic goitre for ten years; she has, on different occasions, had the whole of the right and a portion of the left lobe of the thyroid removed. The symptoms of the disease are still, however, moderately severe. The crises call for special treatment as they arise. The cutaneous and bronchial crises are generally controlled by belladonna in full doses, and the gastric and intestinal crises by opium. In some cases, however, the vomiting continues until death takes place from exhaustion. In one case in which the vomiting continued in spite of all we tried, and until the condition appeared to be almost hopeless, Dr. Pemberton, with whom I saw the patient, finally tried injections of pituitary gland extract. This at once checked the vomiting, which after several injections ceased altogether, and the patient returned to his former condition of Graves's disease of a mild type.

THE PARATHYROID GLANDS.

The true function of the parathyroid glands and their relationship to the thyroid itself have attracted much attention. On the one side it is held that they really consist of undeveloped thyroid tissue capable of becoming functionally active under certain circumstances; on the other they are regarded as separate organs with a special relationship to the nervous system, which is shown by the development of tetany when they are removed. We know little if anything of the results of disease of these organs in man, and the experimental investigation of their functions is complicated by the variable anatomical distribution found in different species of animals. On the whole, their importance appears to have been somewhat over-estimated, but further investigation is required in order to ascertain their real function in man.

THE PITUITARY GLAND.

The pituitary, like the thyroid gland, has a remarkable influence upon metabolism, and the rapid growth and development which normally take place at adolescence are largely due to its activity. Cushing's experiments show that after removal of the hypophysis in adult dogs there are deposition of fat, increased sugar tolerance, lowering of temperature, and abeyance of sexual functions. In puppies there is, in addition, arrest of sexual development and of skeletal growth. In man the effects of pituitary insufficiency are shown in the condition described by Fröhlich and named by Bartels dystrophia adiposogenitalis. This condition may develop either as the result of destructive disease of the hypophysis or in consequence of injury, as in Madelung's case of bullet wound of the pituitary gland. There is a remarkable increase in the amount of fat associated with high carbohydrate tolerance, dryness of the skin, impaired nutrition of the hair and nails, and arrested development of the genital organs. It appears, therefore, that hormones supplied by the anterior lobe of the hypophysis activate skeletal growth and sexual development at puberty, control the accumulation of fat, and the nutrition of the skin and its appendages.

Sir E. A. Schäfer has shown that the posterior lobe, including the *pars intermedia*, supplies hormones which regulate the tone and contractility of plain muscular tissue generally and of the heart, and stimulate the activity of the mammary gland and of the kidney. It seems possible that the secretion is polyvalent, and that these various effects are produced by the action of different hormones, as Herring obtained a pituitary hormone from the skate which stimulated the mammary gland without influencing either the circulatory system or the kidney. In addition to these important results, Sir E. A. Schäfer's experiments have placed pituitrin, a very powerful remedy, in our hands, by means of which we can stimulate plain muscular tissue to contract. It is not unreasonable to expect that it may be found possible to separate the hormones which stimulate glandular secretion from those which act upon the unstriped muscle and so further increase their range of usefulness in the treatment of disease.

Acromegaly.

Not only may disease be due to lack of pituitary hormones, [illegible] arises when the supply [illegible] When this occurs in [illegible] to the characteristic changes of acromegaly. In young subjects the long bones are still able to increase in length, and so a condition of gigantism is the result, and lowered sugar tolerance with glycosuria in some cases.

Just as Graves's disease may be followed by myxœdema, so in the later stages of acromegaly the pituitary secretion may fail and some of the symptoms of insufficiency appear, such as obesity, somnolence, and increased sugar tolerance. The skeletal changes are, however, permanent, and the bones do not return to their normal size and shape when the period of hypersecretion is over. It is interesting, in comparing the functions of the thyroid and pituitary glands, to find that loss of function in the young causes arrest of development in both cases, while hyperactivity causes overgrowth in the case of the pituitary gland alone, for Graves's disease in the child does not cause overgrowth, as might have been expected when we remember the rapid growth of a cretin under the influence of thyroid extract. In the active stage of acromegaly we can expect no benefit from the use of pituitary extract, though thyroid extract has proved to be of service in some cases. The means at our disposal at present for diminishing the overactivity of the hypophysis are the use of X rays and surgical measures for the relief of local pressure symptoms by decompression or the removal of some of the enlarged anterior lobe of the gland, so as to diminish the supply of its secretion. Owing to the deeply seated position of the hypophysis the actual dose of X rays which can reach it must be small. The chief benefit obtained by surgical measures has been the relief of symptoms such as headache and improvement of vision resulting from the diminution of local pressure thus brought about, and is comparable to that obtained by the removal of a portion of a goitre which is compressing the trachea.

THE INTERRELATIONSHIPS OF THE DUCTLESS GLANDS.

It is now fully recognised that the ductless glands have important relationships to each other, and that the secretion of one gland may either stimulate or inhibit the activity of other glands. Of these structures it may, indeed, be truly said, "whether one member suffereth all the members suffer with it." My attention was particularly drawn to this aspect of the subject by observing two cases, which I recorded some 17 years ago, in which acromegaly, Graves's disease, diabetes, and pulmonary tuberculosis were present simultaneously. In one of these subsequently there was found to be a considerable hypertrophy of the hypophysis, enlargement of the thyroid gland, and persistence of the thymus with hypertrophy of the left lobe. At the time I was inclined to regard the hypertrophy of the thyroid and hypophysis as being due to a common cause. Rolleston has suggested that the condition is due to some disturbance of an equilibrium between the internal secretions of the two glands. In myxœdema and after removal of the thyroid gland the hypophysis increases in size and vesicles develop which are filled with secretion. This change appears to indicate that the hypophysis may to a limited extent be able to replace the thyroid gland, although it contains no iodine. The simultaneous enlargement of the two glands is difficult to explain. It is probably due, as Cushing suggests, to an "underlying biochemical factor" of which at present we know nothing. The existence of a relationship between the hypophysis and the sexual glands is shown by the enlargement of the former, which takes place during pregnancy and after castration.

These cases illustrate also the relationship between the thyroid and the pancreas. Glycosuria occurs not only, however, in these cases of pluriglandular disease, but also in cases of Graves's disease, in which there may be an occasional and transitory glycosuria or a severe and fatal diabetes. The diabetes may develop while the symptoms of Graves's disease are still active, or it may only appear later on after they have disappeared. It has been shown by Eppinger, Falta, and Rüdinger that the thyroid and pancreas tend to inhibit each other, so that increase of activity in one is accompanied by a diminution in the other. This influence is probably exerted by the thyroid secretion on the activity of the islands of Langerhans, so that in exophthalmic goitre sugar tolerance is lowered, while in myxœdema it is raised. Lorand found an increase in the islands of Langerhans in dogs after thyroidectomy, whereas the glycosuria induced by removal of the pancreas almost or entirely disappeared after a subsequent thyroidectomy. In one of my cases in which recovery from Graves's disease was followed by severe and fatal diabetes, microscopical examination of the pancreas showed that the islands of Langerhans had practically disappeared. It seems, therefore, that in these cases the prolonged inhibitory action of excessive thyroid secretion may be followed by loss of the internal secretion of the pancreas. We unfortunately know very little of the pancreatic hormones. So far they have not been obtained in an active form, for no preparation of the pancreas has yet been produced which is able to supply the hormones by internal administration when they are absent in a case of pancreatic diabetes. The experiments of J. Forschbach indicate that where a state of "parabiosis" has been established between two animals as by means of a direct communication between the peritoneal cavities, the onset of diabetes after the removal of the pancreas from one animal may largely be prevented by the direct passage of active pancreatic hormones from the other.

The gap to be bridged to enable us to make use of our present knowledge of the function of the pancreas in the treatment of some forms of diabetes thus appears to be a narrow one Could we but transfer the normal pancreatic hormones directly without change from a healthy animal into the blood stream of a case of pancreatic diabetes, striking therapeutic effects might reasonably be expected. Forschbach and Zuelzer have shown that although the glycosuria in man may be diminished by injection of pancreatic extract prepared by a special method, such unpleasant symptoms are produced that, as yet, the treatment cannot be carried out.

THE SUPRARENAL GLANDS.

In the suprarenal glands the medulla and cortex have separate functions. The medulla is characterised by the presence of a chromaffin substance and is constantly supplying an active hormone, adrenalin. It was shown by Oliver and Schäfer that this substance has a remarkable power of raising blood pressure. So active is this hormone that 1/1000 mgm. per kilogramme of body weight suffices to produce a definite rise of pressure. It has further been shown by Langley and by Elliott that adrenalin stimulates the whole of the sympathetic system by its action on the myoneural junction Failure of the suprarenal glands is the immediate cause of Addison's disease, in which there are increased pigmentation of the skin, vomiting, and great prostration, with lowered blood pressure. Though the suprarenal insufficiency is most commonly due to tuberculosis of the glands, Rolleston has shown that other destructive lesions, such as simple atrophy, produce the same result. We know little of the functions of the [illegible] suprarenal cortex, but it [illegible] while the low blood pressur[illegible] disease are due to loss of [illegible] the medulla, the bronzing of the skin is due to loss of the cortex. In adrenalin we possess a remedy the value of which is [illegible] treatment [illegible] than this, [illegible] fortunately [illegible] suprarenal [illegible] this malad[illegible] than the [illegible] addition to adrenalin, contains other hormones which we are as yet unable to obtain in an active condition for therapeutic purposes. So far no decided results have been obtained in the treatment of Addison's disease by any form of suprarenal extract, nor is there any evidence that life can be prolonged by their use.

Excessive action of the suprarenal medulla may occur, but we have no certain information as to its clinical results. There is reason to think that an excess of the cortical hormones in early life may exert a marked influence upon the development of the reproductive system and of secondary sexual characters. In the remarkable cases of premature sexual development in boys from 3 to 9 years of age collected by Bulloch and by E. E. Glynn adrenal hypernephromata have been found. In these cases the genital organs attain their full size, the hair grows on the face and other parts of the body, and the voice becomes deep. It seems not unlikely that this premature development, years before the proper time, is due to excessive secretion of hormones by the adrenal cortex.

The Generative Glands.

It has long been known that the generative glands exercise a dual function, and that their removal not only induces sterility but other remarkable effects as well. Castration in early life prevents the development of secondary sexual characters; thus the antlers do not develop in stags which have been castrated when quite young. The earliest proof that such arrest of sexual development is due to loss of an internal secretion was given by A. A. Berthold, of Göttingen, in 1849, who showed that in cocks after transplantation of the testicle the male characters were retained, and attributed this result to the effect which the organ had upon the blood. Biedl further points out that these experiments were really the first to prove the existence of any internal secretion in the body. Spermatogenesis and internal secretion, the two functions of the testicle, can be separated experimentally, as the internal secretion is in all probability furnished separately by the interstitial cells of Leydig. While ligature of the spermatic cord produces the same result as castration, ligature of the vasa deferentia entails sterility alone. It has been shown by Shattock and Seligmann that the latter operation in sheep does not prevent the full development of secondary male characters, as the vascular supply remains intact and the normal amount of testicular hormone reaches the general circulation. Similar effects are produced by X rays, which induce sterility without arresting internal secretion, as they spare the cells of Leydig.

There is a close relationship between the functions of the generative gland in both sexes and other ductless glands. The absence of sexual development at puberty in cretins and in cases of pituitary insufficiency clearly indicates that both the thyroid and pituitary glands normally exert a powerful influence on the development of both testicle and ovary. This relationship is still further illustrated by the remarkable development of these glands which takes place under the influence of thyroid extract in an adult cretin, who has long passed the normal age of puberty. I have recorded the case of a female cretin who at the age of 28 was only 34½ inches high, in which scanty menstruation had only occurred a few times, and the mammary glands were quite undeveloped. Under thyroid treatment she grew 4 inches in 3½ years, menstruation became regular and abundant, and the breasts and nipples became remarkably well developed. In these cases it is probable that the thyroid extract activates the latent ovary, and that the ovarian hormones thus produced stimulate the growth of the mamma, as they do normally at puberty. The association of premature sexual development with adrenal hypernephroma has already been mentioned, and similar cases have been recorded in association with enlargement of the hypophysis and of the pineal gland.

The results of loss of the secretion of the ovaries are seen after their removal by operation and at the normal climacterium. The symptoms which then occur are variable in character, but hot flushes, irregular perspiration, morbid fears of organic disease, and various subjective sensations are common. It is rather remarkable that so little attention is devoted to their consideration in our medical text-books, and that their true nature is apt to be overlooked. A difficulty in recognising the cause of these symptoms may arise in those not uncommon cases in which they develop at an interval, sometimes of several years, after the cessation of menstruation. My colleague, Dr. W. E. Fothergill, has suggested as an explanation of this separation that the involution of the uterus precedes the atrophy of the ovary by an interval during which the latter secretes normally, and that it is only when the ovarian secretion finally fails that the characteristic symptoms appear.

Conclusion.

This brief survey of some of the results which follow any abnormal ebb and flow of the internal secretions in disease indicates how important are the functions of the ductless glands. As yet we are only able to recognise with certainty the maladies which are due to well-marked changes in the structure and function of these organs. It is probable that some less definite forms of ill-health may also be due to variations in the activity of one or more glands, the sigr cance of which we shall be better able to appreciate wl our knowledge of their functions becomes more exact.

What, however, we most desire is to find satisfact means by which we can supplement deficient secretion the one hand and control harmful overactivity on the otl We have seen how far these objects have been attained some cases. It is dangerous to attempt to forecast fut possibilities, but it is not unreasonable to hope that in light of further knowledge it may be possible to adequat supplement suprarenal insufficiency and so relieve the sy ptoms of Addison's disease. The treatment of Grav disease and acromegaly will become more satisfactory as acquire more adequate methods of checking the abnorn flow of secretion, when it is to be hoped that surgi measures will become unnecessary. Pancreatic diabetes m also prove to be more amenable to treatment by meth at present beyond our reach. Clinical medicine has alrea gained enormously from results obtained by experiment pathology, and we may look to the future with confidence still further advances which will place more simple a efficient methods of treatment within our reach.

Address in Surgery

THE GIFTS OF SURGERY TO MEDICINE.

Delivered at the Eighty-first Annual Meeting of the British Medical Association

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Mr. President, Ladies, and Gentlemen,—The choic of the title for the address which I have the high honour t deliver must not lightly be held to indicate that I admit an difference between the essentials of medicine and surger The two sciences or arts are not in the remotest particul antagonistic; rather is it true to say that they are indee one and indivisible, and that the separation between the tw aspects which are presented to us is due to the limitations the human intellect alone. It has been too long the custor for surgery to be divorced from medicine, for the problems o mind and of hand to be considered as distinct from on another. Happily, owing to the work which has been don in recent years, opportunities have abundantly been afforde for demonstrating the power of surgical research to enlarg the scope and to enrich the knowledge of many of th problems of internal medicine. By a study of what I hav ventured to call the "pathology of the living" a very pro found change has by degrees crept over our knowledge o almost every form of chronic abdominal disorder.

Post-mortem Room Statistics.

In the earlier years of the nineteenth century an acquain tance with the morbid processes attacking internal organ was based upon two sources of information only—upon a inquiry into the details of the clinical history of any diseas as it developed, waned, or progressed, and upon the examina tion of the parts involved after the death of the sufferer.

I have endeavoured to show, on more than one occasion how impossible it is to measure the sufferings of patient during their lives, or to assess their chances of death fron any disease, by a consideration of the statistics gathere from the post-mortem room experience. People do not di in hospital from the chronic diseases from which they suffer during life. It is, so far as the surgical side is concerned, the acute terminal infections, malignant disease in all its forms, especially those lending themselves to surgical consideration, and the accidents of civil life, that supply the bulk of the material upon which the pathologist makes his observations. The statistics of Brinton and Welch, for example, two of the very ablest men ever engaged in medical [illegible] that meet one at every [illegible] this subject—are, in my [illegible] he observations were not made entirely by themselves alone, but by a number of observers of differing capacity working in distant places under diverse conditions. There could be, therefore, no common denominator; there was nothing by which the values of recorded figures could be made equal. And it would be futile to suppose [illegible] fer from duodenal or gastric ulcer [illegible] represented, in point of numb[illegible] these conditions in the wards of a hospital, or by those in whose bodies the traces of old, and perhaps quite inconspicuous, scarring or ulceration are discovered. We shall not, I hope, hear much in the future of post-mortem statistics as the *guides or dictators of our opinions as to the maladies of the living.*

THE SURGEON'S POSSIBILITIES OF DIAGNOSIS IN THE LIVING.

When the great gift of America to humanity—the discovery of the anæsthetic power of ether—was brought to the aid of the operator, vast possibilities were at once apparent in the range of the surgeon's work. But the dread of infection—indeed, the certainty of infection—held his hand for more than a generation, till the work of the greatest man our profession has ever produced, Lister, made the dream of the surgeon come true, made it possible for him with safety to carry through many procedures which before had been impossible. More than this, the chance was given to undertake the treatment of diseases which had formerly run their hasty or lingering course unchecked. Little by little our scope then widened. Acute conditions were at first attacked, perforations of the hollow viscera, gangrene of the appendix, hæmorrhages from the bursting of a tubal gestation, and so forth. By degrees the impres[illegible] were but final stages, [illegible] seases whose presence and course were betrayed by symptoms which were clear and often characteristic. When these conditions were approached surgically in their earlier and more quiescent periods the results of operations were at first not very satisfactory. Crude methods and imperfect technique left legacies of trouble behind them. The mortality was high, and remote results were rarely ideal.

It is interesting now to recall the clumsy manifestations which attended such operations as cholecystostomy or gastro-enterostomy in the days of their infancy. Owing to the labours of Senn and of Murphy simpler methods began to find a place. The bone-plates and the button showed how little was really necessary to secure firm and permanent *union between well-clad peritoneal surfaces. Though these* instruments are now discarded entirely, to all of us the lessons learnt from them were most important and most necessary. But for them we should never have realised as we do to-day how speedily and how simply those manipulations can be carried through with precision which before had occupied two or three hours and had involved the separate introduction of 200 or 300 stitches. In surgery complexity of procedure indicates defect in method. The search in all our work is for the simple way. In surgery, as in other arts, simplicity is the supreme virtue. Our unceasing efforts in technique are to discover what may safely be left out.

THE ASSOCIATION OF ABDOMINAL DISEASES POINTING TO A COMMON CAUSE.

As we began to recognise, almost unconsciously, the ease and sufficiency of the simple mode, the mortality from all operations fell rapidly. So it became a safe and customary procedure, not only to deal with the particular lesion which had demanded attention, but also to investigate the conditions of adjacent organs. And there surprising developments awaited the inquirer and rewarded his eager search. Conditions other than those which needed immediate attention were found to exist with no little frequency. In diseases of the stomach or duodenum the gall-bladder was found not seldom *implicated also*; in diseases of the latter, as of the former, the vermiform appendix seemed often to play the part of an infecting agent. And so by slow degrees the conviction was borne in upon us that these diseases I have named did not stand in rigid isolation, one separate entirely from the other, but that their association was so frequent as to indicate the strong probability of some underlying primary cause. Infection, it was soon asserted, whether carried by the blood stream, by the lymphatics, or ascending, as Bond has shown with great clearness, along the mucous canals, was the prime evil. Differences of opinion were soon declared, and still continue, as to the source of the infection. To many of us the quiescent inflammatory lesions of the appendix seem the most potent and the most persistent of all. Arbuthnot Lane, as *I shall presently state more fully*, holds firmly to the belief that the infections for the diseases I have named, as of many others, have their origin in the intestine, large or small. And his views are sustained by him with quiet and characteristic courage, and with a record of results that compel attention even from the most sceptical.

A DEBT OF SURGERY.

To the surgical assault that we made upon our patients for the purposes of this study of the "pathology of the living" there was one serious objection. After all abdominal operations some pain was felt. Not very much in the ordinary appendix cases, a little more perhaps in the gastric cases, and certainly more in the patients who had submitted to operations upon the biliary tract. The pain was rarely very severe, but it called often for the administration of a small dose of morphine, and it was certainly enough to constitute a blemish upon our artistry. Further than this, it was noticed that after [illegible] the parietal peritoneum, [illegible] separation and ligature [illegible] plained of flatulence, which, in the more severe cases of abdominal exploration and handling, was severe and most distressing. It had long appeared quite certain to me that the condition described by the patient as "flatulence," the "gas pains" of the American surgeon, had really little or nothing to do with gaseous distension of the intestines. There was a feeling of "fullness" to the patient; but often no recognisable inflation of the intestines when an examination was made, nor was any real relief obtained by the expulsion of gas. Flatulence, I felt convinced, was the name given to a condition which depended upon trauma, or the rough handling of the parts engaged in the operation. Happily we are now able to make certain that any operative procedure in the abdomen can be carried out thoroughly *without the infliction upon the patient of any intolerable* pain and without his being caused to suffer any flatulent distress afterwards. We owe this entirely to Crile. The debt of surgery to this most acute, most versatile, and patient investigator was already a heavy one, but I think that to the surgeon of tender heart—and all surgeons surely are tender-hearted—his latest work must bring the most profound *satisfaction.*

ANOCI-ASSOCIATION.

Crile has enunciated the principle of "anoci-association." He has shown that in the condition recognised as "shock" definite and demonstrable changes occur in the cells of the brain, which have discharged all the energy they had stored. This exhausting discharge of nervous energy is due to that *excitation which is caused by the infliction of* numberless injuries, each of them small, or to the infliction of one overwhelming impression. When an operation is performed under ether anæsthesia, the operator may delude himself into the belief that because his patient lies unconscious, and apparently unresponsive to any hurt, therefore no damage to his nerve centres is possible. But ether anæsthesia *does not* put all the brain to sleep; the larger part, and by far the more important part, is awake and staring, ready to be acted upon, and to be injured, just as easily as if the patient were awake. The fact that some operators produce little constitutional disturbance, little shock, by the performance of an operation which at the hands of another causes very serious collapse, is not due to differences in the patient, in the anæsthetist, in the method, or in anything else but the surgeon himself. There are surgeons who operate upon the "canine" principle of savage attack, and the biting and the tearing of tissues are terrible to witness. These are they who operate with one eye upon the clock, and who judge of the beauty of any procedure by the fewness of the minutes which it has taken to complete. There are other surgeons who believe in the "light hand," who use the utmost gentleness, and who deal lovingly with every tissue that they touch. The former type of operator is described by Crile as "carnivorous"; the latter type is nowhere better exhibited than in his own work. The scalpel is, indeed, an instrument of most precious use—in some hands a royal sceptre; in others but a rude mattock. The perfect surgeon must have the "heart of a lion and the hand of a lady"; never the claws of a lion and the heart of a sheep.

The brain, then, under ether anæsthesia is in great part wide awake, appreciative of stimuli, and in part responsive to them. During any surgical operation, Crile assures us, there is, in reply to every incision, every pull of the retractors, indeed to every physical contact, a change in the pulse, the respiration, and the blood pressure. Every surgeon conversant with abdominal work knows how a rough handling will cause tension in the muscles and deepen the patient's breathing, making loud and stridulous the expiratory effort, as though the victim were groaning in his agony. No general anæsthetic, it is clear, can shelter the brain from the assault committed upon it by the injuries inflicted during an operation. Crile has therefore suggested that by means of local anæsthetics—novocaine for the skin, quinine and urea for the parietal peritoneum—a barrier can be erected around the area to be operated upon, so that no nerve impulses can be conveyed from the territory so isolated. The field of operation, that is to say, may be temporarily disconnected from the brain, not only at the time of operation, but for periods of one to five days subsequently. The operation then is conducted in an area which, for the time being, does not belong to the patient, which he cannot reach by any impulse directed towards it, and which can be dealt with as the surgeon wishes without the patient having any power of receiving impressions from it.[1]

But this is not all. Shock may be produced not only by physical violence, but also by psychical disturbances, by emotional excitement, by the receipt, for example, of good or bad news or by fear, the suspense and the trials of some great ordeal. By many patients their submission to an operation is viewed with dread and apprehension. In order that the best results should follow upon our work it is necessary that every consideration should be shown to a patient, and every proper regard to his wishes; every encouragement should be offered, and the impression forced upon him that all those engaged in the operation or his after-treatment are working strenuously to the one end—his assured and rapid recovery. The fears which hover round the last hour before an operation are greatly modified by the administration of a small dose of morphine with scopolamine. A happy frame of mind is thereby induced, and very little nitrous oxide gas is required to put the patient soundly to sleep. The memory of the conveyance of the patient to the operation theatre and of the administration of the anæsthetic is often abolished by these measures. This is, in brief, the method of Crile, which I have used for many months, and which has added a pleasure to my work that is really immeasurable. To the great discoveries of Morton and of Lister this of Crile seems to be the fitting completion.

Several interesting side issues have developed as this procedure has become more widely practised. The most striking of all improved results is seen in the treatment of exophthalmic goitre. In England we see little of this disease, and very few operations appear to be necessary. In America, where the days are more strenuous and the rush of life more eager, operations are more often and more urgently needed. After such operations it was no uncommon thing to find that the patient suffered profoundly from "shock," and the heart beat so rapidly that it often seemed to be galloping to death. After an operation conducted by Crile's method the emotional activities of the patient are undisturbed, and within a few days his whole appearance and condition undergo a striking change for the better. "Aseptic wound fever" is almost certainly due to psychical factors.

EARLY SYMPTOMS AND LATE SIGNS.

Equipped with these new powers, due to the three discoveries of ether,[2] of antisepsis, and of anoci-association, the surgeon has been empowered to conduct his investigations into the conditions of disease in an entirely novel manner. Half a century ago a patient who was suffering from any form of abdominal disorder could not do more than describe his symptoms in detail to his medical attendant. He could not lend his body to inquiry, and no investigation of the parts concerned in his disorder could be conducted until after death. Death might occur from the final stages of this same disease, or more often from some intercurrent and independent malady. It was difficult then for the pathologist conducting an examination of the body to make the symptoms and the signs tally, for at this stage they had probably ceased to correspond one to another. The final ruin of an abbey tells us nothing of the domestic habits of the monks who found shelter within its once unbroken walls. The ultimate devastation in a lesion of the stomach, such as is seen on the necropsy table, tells us nothing of any value of those early wanderings from the normal condition which the same parts had once displayed. Terminal events may seem to have no connexion, or at best a very remote one, with the early changes of which they are the outcome. All the knowledge our forefathers possessed of the power of organic changes to cause clinical symptoms depended upon an inquiry into those changes when they had reached the last stage in their career. This last stage might be disastrous, as in the case of a chronic ulcer of the stomach which had led to cancer; or it might be inconspicuous, as in the case of a duodenal ulcer which had healed, as such ulcers sometimes will, without leaving any scar, or only such as the pathologist in his haste may overlook. So all was confusion. Two incompatible things were considered side by side—early symptoms and late signs. When we consider the crushing disadvantages under which our forefathers worked it is amazing to find how much they did, and with what accuracy they had solved many problems. The most conspicuous example of this extraordinary insight into abdominal diseases is, I think, afforded by the work of Brinton, whose books on "Diseases of the Stomach" and on "Ulcer of the Stomach" for wide observation, profound and cogent reasoning, and beauty of language have never been challenged by those of any other writers. But with the new methods to which I have referred the study of the pathology of the living became possible. Symptoms recited at the moment could be ascribed to the lesion disclosed by the operation in the precise stage of its existence in which it was capabl[illegible] symptoms. The history of abdominal [illegible] years is the tale of the lessons that were learnt.

The most considerable revolution has occurred in connexion with our inquiry into the condition of "dyspepsia." To any who have no acquaintance with their works I can hardly imagine a greater intellectual delight than to read what Brinton, Johnson, Sir Thomas Watson, and other early fathers have written upon the subject of dyspepsia. With perfect accuracy of observation in many instances, with supreme mastery of English in almost all, they tell the story of many of the forms of dyspepsia. But none of them realised, as we by degrees have come to learn, that dyspepsia is so often a manifestation, not of a nervous or functional disorder, but of a real organic change. The story of how this all came about may bear retelling.

In the early days of gastric surgery operations were undertaken either for the relief of patients afflicted with carcinoma, after the methods laid down by the great pioneer and master, Billroth; or for the treatment of cases of pyloric obstruction by the operation of gastro-enterostomy, suggested in a whisper by Billroth's assistant, Nicoladoni. Of cancer I have at this moment nothing to say. In cases of pyloric obstruction the operation gave results which were quite amazing in their character and rapidity. Patients, emaciated almost to the last degree, unable to take more than the most meagre of meals, afflicted with copious vomiting at intervals of only a few days, became in two or three weeks happy mortals, with keen relish for food, which gave no unease, and which was retained without difficulty. Many patients underwent a veritable resurrection; one of my patients weighed 51 lb. when operated upon and a few years later weighed 131¼ lb., and in several instances I have known the weight to be doubled.

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[1] THE LANCET, July 5th, 1913, p. 7.

[2] I say nothing of chloroform, for I dislike and fear it intensely and use it hardly at all.

"Gastric Ulcer" in the Right Iliac Fossa.

So marvellous were these results that the eager activity of surgeons led them to employ the same method in other cases of "gastric ulcer." Patients who for years had suffered the misery or the martydom of indigestion readily submitted to any operation offering a prospect of relief. But it soon became apparent that the results were not so brilliant in the later as in the earlier cases, and the dreadful mistake was widely made of accepting the diagnosis of "gastric ulcer" as positive in all patients who presented the symptoms which the text-books of medicine had told us were pathognomonic of the disease. Patients who suffered from pain, vomiting, and hæmatemesis were held to be the victims of "gastric ulcer," and for gastric ulcer the approved surgical remedy was gastro-enterostomy. Little by little the truth dawned upon us that "gastric ulcer" was a perilous diagnosis to make. For, with whatever confidence the existence of this lesion was predicted, disappointment and dismay followed fast upon the investigation of the parts. The stomach in these cases often showed no trace of that hard white scar which we knew must indicate the site of an ulcer of old standing. For a long while we were at a loss to know what the cause of the symptoms might be, when all the stomach walls and the duodenum appeared healthy. The scope of inquiry in such patients was therefore widened, and the discovery made which excited the deepest disbelief in the minds of many and which still meets with incredulity—the discovery that in the majority of cases which come to an operation a "gastric ulcer" has its place in parts other than the stomach.

There is now no longer any doubt in my own mind that the commonest site of a "gastric ulcer" is in the right iliac fossa. That is to say, that in the majority of cases in [illegible] e most astute German [illegible] diagnosis of ulcer, the [illegible] where, and more often [illegible]. The appendix may [illegible] ey are all alike in one [illegible] character. Infection [illegible] Sir Bertrand Dawson [illegible] which a patient derives abdominal trouble. In the appendix both may be at work at the same moment; indeed, one follows inevitably upon the other. [illegible] obstruction. [illegible] the stomach [illegible] complete observations I often thought it was. Now I feel sure that there is, I think I may say always, such a change in the appearance of the organ as will enable the most absolute prediction to be made that the appendix is diseased. These changes are: a vivid injection, a deep congestion of the pyloric portion of the stomach over a distance of two or three inches at least; a great, irregular, eager activity of contraction, the muscles of the part appearing to writhe i[illegible] d thirdly, an enlargement of the [illegible] nds. The explanation of these [illegible] clear; of their existence there i[illegible] he present position of our opinion [illegible] in many of the cases of "gastric ulcer," the symptoms of which are pain, flatulence, acidity, heartburn, vomiting, and hæmatemesis, the lesion primarily responsible for such symptoms does not lie in the stomach. The lesion is one in whic[illegible] o harm, and its [illegible]

The [illegible] indeed, already [illegible] distant infectio[illegible] which often produce the gross lesions just described in the stomach may be the precursors and the excitants of a chronic ulcer of the stomach. The experimental work of Turck, Bolton, and Wilkie has shown how ulceration of the gastric mucosa may be set up by infecting agents, and may be perpetuated by the inability of the stomach completely to empty itself in the normal time. To infection, stasis is added and often also an increased acidity, or at least an acrimony of the gastric juice. Gastric ulcer, then, would appear to be almost always a secondary disorder; the primary fault lies not in the stomach, but elsewhere, its expression is manifest in the stomach because of the particular series of incidents which occur therein. This much is certain—that when cases of gastric ulcer come to the operation table the evidence of other and apparently older lesions is rarely wanting.

Chronic Ulcer and Carcinoma.

Among the most notable of the gifts of surgery to medicine is the proof that in a large proportion of cases the onset of cancer of the stomach is not a new and unaccountable thing, but is, on the contrary, a tardy development upon an earlier condition which for years had clamoured for recognition. It appears to me that the work of the Mayo Clinic has offered irrefragable proof of this assertion.

I am, of course, well aware that all cases of cancer of the stomach, unhappily, do not come to the surgeon. No one but the surgeon can do any good to patients so afflicted. Yet there is a strange timidity of approach to the surgeon which is unaccountable, and far too often the favourable period in the history of a case is allowed to slip away before any recognition of the real conditions is attempted. It is true, then, and must be admitted, that when the surgeon speaks of the work which passes under his hand he is not speaking of the whole. Nor is anyone else. Neither the physician nor the post-mortem investigator knows the whole range of cases; indeed, each sees far less nowadays than the surgeon. The view of the latter, therefore, if not all-embracing, is doubtless wider than that of anyone else. The experience of the surgeon shows—and here geographical considerations seem to matter little—that, roughly, two out of three of all patients who come for relief from a condition of carcinoma of the stomach give a history of inveterate and recurring dyspepsia over a stretch of many months or years. No one knows so well as the surgeon, for he made and repeats daily the discoveries, that such a history does not mean that there is a chronic ulcer of the stomach, healing and breaking down afresh, during all that time. But though we are grown chary of making a diagnosis of "gastric ulcer" with that ease and certitude which formerly attached to the physicians of all countries, we can and do make an accurate diagnosis in a large proportion of the cases, if only those patients are allowed to be suffering [illegible] be supposed to be the [illegible] The surgeon who walks [illegible] gastric ulcer is a real thing, though so many impostors have claimed his attention. In the majority of the cases of gastric carcinoma the history given of earlier attacks makes it almost certain that these were due to a veritable ulcer of the stomach. There may be, I fully admit, errors in this estimate; but making all the allowances that our operative [illegible] to be necessary, there can be, I think, [illegible] chronic gastric ulcer has been [illegible] of which recurring attacks are noted. In one of these attacks, perhaps after an interval of months or years of freedom, something different is noticed. The attack is heralded in the old way; at first no difference between it and the others may be observed. But by degrees it is realised that something worse is occurring. The symptoms, which in earlier attacks were so easily amenable to careful treatment, to rest, to sparing diet, and so forth, have now become more severe and incoercible. Relief does not come from the measures which before have been so instantly successful. Moreover, weight is more rapidly lost, anæmia may develop, and anorexia is most persistent and distressing. This is the occasion, all other and more favourable occasions having lapsed, when instant—it can hardly be called precocious—surgical treatment should be urged. The patient has now arrived at middle life, or has passed it, and the diagnosis of cancer may tentatively be made and should be acted upon with alacrity. Surgical intervention for purposes of inquiry has hardly any mortality nowadays. If a cancer be found and a resection of the stomach is undertaken, the mortality will vary with the expertness of the hands which practise it. But whatever that mortality may be, it cannot attain the death-rate of inaction and of "expectant" or medical treatment, which is exactly 100 per cent. It was urged by Dr. W. L. Rodman many years ago that resection of the pyloric end of the stomach for the ulcers that singly or in clusters are found there was the most prudent mode of treatment. In his clinic at Rochester Dr. W. J. Mayo has for several years resected the stomach not only for chronic ulcers in the vicinity of the pylorus, but also for those tumours which might be due to ulcer or might be due to cancer, for declared cancer and for those cancers which, though evidently not curable because of the enlargement of distal, secondary glands, or other visceral deposits, were yet removable. In his so safe hands resection has hardly any greater mortality than gastro enterostomy. This procedure is questionless the ideal one. It has afforded, of course, a unique series of specimens for investigation. Dr. Wilson and Dr. MacCarty conclude from their examination of all the material so furnished that in 71 per cent. of these cases of cancer of the stomach the malignant process is engrafted upon a simple one, that cancer is really due to a secondary change which starts in the edge of an ulcer of long standing. My own material, far less in quantity, bears out their contention. It has been shown that in the base of these ulcers tending to cancer the mucosa has gone, leaving only scar tissue; in the overhanging border of the ulcers the mucosa is proliferating, and some epithelial cells, nipped off by scar tissue, are showing all the stages of aberrant proliferation with infiltration of the surrounding tissues and metastases in the lymphatic vessels of the stomach wall. The truth of these observations is hardly yet admitted by those whose inquiry has been based only upon specimens found in the post-mortem room or on the shelves of the museums—upon parts, that is, that have been long dead, and subjected, no doubt, to the many changes which death and swift decay bring in every cell. Upon the post-mortem table only the final dilapidated ruin of the disease is seen; in specimens removed during life the disease in its earlier stages can be scrutinised. The material upon which the pathologist has formerly worked has not been favourable to the discovery of the truth; the sources of eternal truth were poisoned.

It would be hard to decide among so many strong competitors as to the primacy of any piece of work given out by the Mayo Clinic. It is, however, safe to say that the real and permanent value of the contributions to this subject of cancer of the stomach, both from the technical and the pathological sides, can hardly be overstated.

DUODENAL ULCER.

The infection, which has its origin in the appendix or in the intestine, wreaks other harm than that upon the stomach wall. Of duodenal ulcer and of cholelithiasis we have also learnt that they are usually secondary manifestations. Of duodenal ulcer I have so recently and so fully written that it is not necessary here to do more than record the fact that a full knowledge of its symptoms and course, and the power, unrivalled in any other abdominal disorders, of making an accurate diagnosis are not the least important of the gifts of surgery to medicine. Of this disease almost nothing was learnt after inquiry from the dead alone, except of those late preventable disasters which come from its unchecked course. In the early days of our recognition of this condition we were assailed by a formidable array of post-mortem statistics which went to show the rarity of the disorder, and the absence or the inconstancy of any symptoms which could be attributed to it during the life of the patient. We now know the great frequency of the disease—every month I operate upon more cases than were formerly recognised in the post-mortem room of the largest hospitals in ten years—and the claim may truthfully be made that of all abdominal diseases none can be more certainly discovered by a scrutiny of the anamnesis alone.

THE ETIOLOGY OF GALL-STONES.

Another and equally important reversal of opinion has occurred in connexion with cholelithiasis. It was formerly the accepted belief, and as fallacies die hard may still be the view of some, that in a large percentage of cases gall-stones were "innocent"; they declared their presence by no apparent sign, and their existence threatened no peril to the health or life of the patient.

The work of Lartigau upon the etiology of gall-stones is of the first importance. He showed that active organisms taken up by the portal stream from the intestine were passed through the liver, which acted as a "destructor." They emerged from it in the bile, lifeless. Some few, however, under special circumstances, made their escape, and remained active in the bile which flowed to the intestine. If the organisms which find their way into the gall-bladder are violent in their activities an acute inflammatory condition, of a degree which varies with the intensity of the infection, is caused. There may be any gradation from an acute phlegmonous cholecystitis to a trivial and evanescent catarrhal condition of the mucosa. If the germs be in an attenuated condition the contractile power of the gall-bladder is competent to expel them, and no harm results. So far as experiment serves to show, a stone can only develop in the gall-bladder (and the gall-bladder is the factory wherein all stones are made) if, with a mitigated culture of micro-organism, there is some retardation of the outflow of bile. Sepsis and stasis must go together. The gall-bladder then puts forth its own efforts to protect itself, and secretes cholesterin, which being deposited upon the surface of the germs, clumped as they probably are, safely immures them. A gall-stone, then, consists of a deposit of cholesterin (alone, or with the addition of other salts) upon a nucleus of organisms which have intruded into the gall-bladder. Every gall-stone, as I have said before, is a tombstone erected to the evil memory of the germs that lie dead within it. The frequency with which gall-stones lie inert within the gall-bladder, causing no harm and arousing no symptoms, is so very small as to be quite negligible. It is certainly much less than 1 per cent. in all those cases which come for surgical treatment, and, though I admit that this estimate involves a possible fallacy, yet the truth cannot be known of all the cases in which gall-stones exist, for neither operative work, nor the examinations of the dead, nor the records of the "spas," reveal the whole matter.

THE INAUGURAL SYMPTOMS OF GALL-STONES.

The error that has found a place in the minds of all medical men, and has been faithfully carried down from one generation of text-books to another—that in the majority of cases gall-stones cause no symptoms—has been for ever dispelled by the work of the surgeon. In operating upon cases of advanced cholelithiasis a history of inveterate though perhaps trivial dyspepsia over a long period can almost always be obtained. In operating upon patients for the relief of other conditions—myoma of the uterus, ovarian or other pelvic conditions, appendicitis or ulcer in the stomach or duodenum—a routine examination of the gall-bladder and kidneys should be made. Every now and again stones will be found in the gall-bladder, and far more rarely in the kidneys. In the case of the former a clear history of dyspeptic troubles can, in my experience, invariably be obtained. It is true that these symptoms are not those which are commonly recognised as being due to a gall-bladder condition, but the gift of surgery to medicine consists here in the true portrayal of those clinical manifestations which only an examination of the living could disclose. We now know that the earliest symptoms, the "inaugural symptoms," of cholelithiasis are just as characteristic, just as certainly to be recognised, as those of the later sequels and avoidable complications. And more than this: the very little that was known of cholelithiasis in its clinical aspects has undergone a complete revision, with the result that we are often able to declare not only the presence of stones, but often the position of that which is causing the most serious trouble. The only circumstances under which symptoms are not at the moment aroused by stones which lie within the gall-bladder exist when the cystic duct has become permanently closed and the walls of the gall-bladder, thick, and white, and hard, embrace firmly the stones that lie harmless within it. This is the "natural cure" of Rutherford Morison, a condition which develops only after months or years of symptoms, often of great severity. It is Nature's cholecystectomy, and though Nature may be an admirable physician, her skill as a surgeon is of the lowest order, and her work cumbersome, clumsy, and dangerous.

LESIONS OF THE PANCREAS.

It is as an outcrop of the work of the surgeon on gall-stones that all our modern knowledge of the clinical aspects of chronic pancreatitis has sprung. The acute form of pancreatitis was first recognised and, with something nearly approaching to finality, described by one of the greatest of physicians—Dr. Fitz of Boston. But of chronic inflammation, of stone, of cysts, and of the mimicries of cysts, nothing was heard or known till the surgeon came bearing these gifts in his hands.

We know well the great change that comes over all parts of the body after death; the face changes, wrinkles are smoothed away, the cheeks sink in, the eyes are lustreless, the orbits hollow. Other parts change equally, and among them the pancreas, perhaps, most of all. In a case of acute pancreatitis the gland, at the moment of operation, seems one massive phlegmon—tumid, doughy, and with no abrupt margin. After death it appears to be merely a bruised and blood-stained organ. So with the gland in a state of chronic inflammation. To the hand of the operator it may feel large and densely hard, and it may be responsible for the obstruction and a considerable dilatation of the common bile duct. After death it seems hardly altered from the normal, and certainly in earlier, less exact days would not have attracted close attention. The evidence of the operator and the pathologist was then incompatible, because neither seemed to recognise that their approach to the problem was from different points of view.

The question of chronic pancreatitis was first brought before the minds of surgeons by Riedel, who noticed that in many operations upon the biliary passages the pancreas was large, hard, and unduly firm. In three recorded cases he believed the patient to be suffering from carcinoma of the head of the gland, and he gave, accordingly, a hopeless prognosis. Two patients recovered, and remained perfectly well; the third patient died, and the examination of the pancreas showed no trace of malignancy, but the plain evidences of a chronic interstitial inflammation. Little knowledge, however, sprang from this observation, until Mayo Robson, with his then unrivalled experience of cholelithiasis, showed the frequency and the clinical importance of pancreatitis, and convinced us all of its powers of mimicry both of carcinoma, and of the calculous form of common duct obstruction.

Its mimicry of carcinoma may be complete. Painlessly and progressively the patient may develop jaundice, which continues to deepen until the "black jaundice" of the older writers can be recognised. There are great loss of weight and prostration, hebetude and misery, though often the appetite is unimpaired. The liver enlarges and the gall-bladder distends to a degree which allows it to be easily seen and felt protruding below the rib margin. In accordance with the law of Courvoisier we assume that such a dilatation of the gall-bladder is due to causes other than stone. An examination of the stools might show a complete absence of bile pigment, and this may seem the most conclusive evidence of carcinoma, for a chronic inflammation, however inveterate, rarely causes an absolutely impermeable block to the passage of bile.

CHOLECYSTENTEROSTOMY.

With the history of a condition such as this, one could hardly fail to make a diagnosis of growth and predict a speedy ending to the case. But no one living is infallible in the differential diagnosis of obstructive jaundice. The diagnosis is always so difficult, and the chance of a life saved so important, that, however positive the evidence of malignancy may be, I advise operation in all cases. So far as immediate amendment is concerned, there is little to choose between the malignant and the benign cases. In both the patient begins to improve, the jaundice falls away slowly, sometimes very slowly, and weight is soon gained. The operation performed consists in joining the gall-bladder to the intestine, to the duodenum if easily available (it may be quite inaccessible, lying high and remote, when the liver is enlarged and the gall-bladder over-full), or to the stomach. It may be feared that when all the bile passes directly into the stomach, nausea, vomiting of bile, or loss of appetite results. Such fears are groundless. I have joined the gall-bladder to the stomach in more than 20 patients who have survived a year or more, and there is no suspicion of any special discomfort attaching to the operation. I have patients
erated four, six, and seven years
hat they suffered from carcinoma
. It is impossible for the most
astute clinician or the most subtle pathologist to discover by physical signs, from the anamnesis or from the chemical examination of urine and fæces, whether a simple or a cancerous disease is present. He may shrewdly guess, but a guess is a poor peg on which to hang a man's life. All cases of obstructive jaundice should be operated upon; the *mortality of cholecystenterostomy now is trifling if* we take into account the severity of the disease and the outlook. Apart altogether from the prolongation or saving of life, almost every patient will declare that the relief from the maddening torture of itching is worth every sacrifice.

Acute pancreatitis, so accurately described by Fitz, remained for long a desperate and often lethal disorder. The onset of the symptoms was so abrupt, their course so rapid, and the fatal event so precipitate that for many years surgeons were quite unable to realise the moment for swift intervention. When operation was undertaken it was generally upon the mistaken diagnosis of perforating ulcer of the stomach or duodenum. And it was not until Ramsay, in 1902, showed that the chief surgical indication here, as in the case of a phlegmon in the extremities, consisted in the relief of tension that success began to attend the surgeon's efforts. Now it is a matter of very little difficulty to make an accurate and timely diagnosis of acute pancreatitis, and the recovery of the patient can generally be assured. A tribute here may fittingly be paid to the work of Simon Flexner and Opie, who showed how apt an intense inflammation of the gland is to follow upon the infection of its duct by bile, by chemical irritants, or by infective agents. Acute pancreatitis is not seldom associated with cholelithiasis, bile which is obnoxious to the gland passing from the common duct to the canal of Wirsung when the orifice of the ampulla is blocked by a tiny stone.

Other diseases of the pancreas, cysts and calculi, have lent themselves also to accurate diagnosis and successful treatment by the surgeon. One of the very ablest and most original papers contributed to the literature of surgery in my time appeared in the *British Medical Journal* in 1892 (vol. ii., p. 1051). It was written by the great surgeon and my very good friend, who preceded me in the delivery of this annual address, the late Jordan Lloyd. He pointed out that, contrary to the generally received opinion, the fluid tumours appearing in the epigastrium after the receipt of an injury were not veritable cysts of the pancreas, but accumulations of fluid in the lesser sac of the peritoneum which had closed at the foramen of Winslow. Calculi are rarely found in the pancreatic ducts. Their presence has been recognised, and in a few cases the stones have been successfully removed, since the inauguration of surgical treatment by Pearce Gould in 1896.

THE SOURCE OF INFECTION IN THE ABDOMEN.

Among the most interesting and possibly one of the rich gifts of surgery to medicine is the hypothesis that intestinal stasis, with the associated condition of absorption of toxins, is responsible for many of the diseases which attack, not only the abdominal viscera, but even also parts remote therefrom. Perhaps no subject in medicine to-day has received more discussion, has been more bitterly assailed, more often attacked by derision rather than by argument, and more cheerfully supported than this. Its author, Arbuthnot Lane, is a man whose mind moves easily along new paths. Such a pioneer has often reached his destiny before other tardy travellers have set out upon the way. The pioneer in all branches of knowledge rarely himself reaches the truth—he is more apt to overreach, or to be content to guess the road that lies ahead without beating it down with his own foot tread.

In contemporary surgical history many observers, as I have pointed out, have had their minds attracted to a firm belief in one thing—namely, that many of the diseases for which surgery is called upon to deal are not primary disorders, but are secondary; that they depend for their existence and extended development upon some common cause; and that this common excitant is an infection which expresses itself now in one way, now in another. The conditions I have already mentioned—ulcer of the stomach or duodenum and cholelithiasis—are, in the belief of all of us who do much work for their relief, really dependent upon an infection. For my own part I look upon the appendix as the most potent and the most frequent cause of offence. Arbuthnot Lane takes a wider view. He believes that the intestine itself is the factory in which the poisons are

Table of Thirty-one Cases of Arsenic Cancer.

Case number.	Author and observer.	Year of publication.	Title of paper and reference.	Patients.		Evidence of administration of arsenic.		Locality of cancer.	Microscopic confirmation of cancer.	Treatment.	After-history.	Result.
				Sex.	Age.	Facts stated.	Effects observed.					
1	Samuel Pozzi.	1874	"Epithéliome du Pied développé chez un Individu affecté de Psoriasis." (52)	M.	45	Had suffered from psoriasis for 25 years.	"Warts" and thickened nails.	Foot.	Not stated.	Excision.	Not stated.	Not stated.
2	A. Cartaz.	1877	"Développement d'un Cancroïde sur une Plaque de Psoriasis du Doigt." (53)	M.	40	Had suffered from psoriasis for 23 years.	"Warts" on palms and soles.	Right ring finger.	"	Amputation of affected finger.	Gland at internal condyle affected.	"
3	James C. White.	1885	"Psoriasis — Verruca — Epithelioma: a Sequence." (7)	M.	46	Had taken Fowler's and Donovan's solutions for six years on account of psoriasis.	"Warts" and callosities on palms, &c.	Palm of right hand; fore and middle fingers of left.	Positive.	Amputation of right hand and of left fore and middle fingers.	Axillary glands affected.	Death 16 months after operation. P.m., cancerous metastases in internal organs.
4	James C. White.	1885	" " (7)	M.	52	Had taken arsenic for long-standing psoriasis.	Horny outgrowths on hands.	Right wrist and perineum.	"	Excision.	Cellulitis of forearm.	Death six weeks after operation.
5	Hans von Hebra.	1887	"Ueber die Entwickelung von Epitheliom auf Psoriatischer Basis." (50)	M.	Middle aged.	Had undergone many forms of treatment for psoriasis.	"Warts."	Right arm, right thigh, and other parts.	"	Excision of ulcer on thigh.	Fever and rapid loss of strength.	Death soon after operation.
6	Jonathan Hutchinson (and Waren Tay).	1888	"On Some Examples of Arsenic Keratosis of the Skin and of Arsenic Cancer." (1)	M.	34	Had been long treated by arsenic for psoriasis.	Corns on palms and soles.	Scrotum.	Not stated.	Excision.	Well nine months after operation.	Not stated.
7	Jonathan Hutchinson (and Clifford Allbutt).	1888	" " (1)	F.	25	Had taken arsenic for pemphigus and habitually afterwards.	Roughness of palms.	Near crest of left ilium.	Not made.	General.	Groin glands and skin of thigh affected.	Death early.
8	Jonathan Hutchinson (and John Chiene).	1888	" " (1)	M.	55	Had taken much arsenic for psoriasis.	Keratosis of palms and soles.	Sole of left foot over ball of grea toe.	Inconclusive.	Erasion and application of zinc chloride.	Well a year after operation. Later cancer appeared on the thigh.	Death from cancer of stomach a few years after operation.
9	W. Arbuthnot Lane.	1894	"Multiple Epitheliomatous Growths Developing in a case of Psoriasis which had been treated with Arsenic for more than 30 years." (2)	M.	63	Had taken arsenic for 30 years for psoriasis.	Not stated.	Forearm and scrotum.	Positive.	Excision.	Fresh lesions occurred and were removed.	Not stated.
10	Jonathan Hutchinson.	1894	"On Arsenic Keratosis and Arsenic Cancer." (13)	M.	35	Had taken arsenic for some months ten years before for acne.	Keratosis of palms, with corns.	Hand and scrotum.	"	"	Fresh lesions occurred, at intervals of years, and were removed.	"
11	Jonathan Hutchinson (and J. E. Bullock).	1898	"A Case of Arsenical Cancer." (14)	M.	46	Had taken arsenic liberally for many years for psoriasis.	Keratosis of soles.	Over pubes and on back.	Negative.	General.	Glands of groin and pelvis infected.	Death from exhaustion.
12	Jonathan Hutchinson.	1898	"Arsenic given in Early Life; Keratosis of Palms and Soles; Excision of Ulcers from Palms; Cancerous Implication of Cervical Glands; death." (15)	F.	45	Had taken arsenic for 20 months for epilepsy.	Keratosis of palms and soles.	Right hand and below left breast.	Positive.	Excision of ulcers in palm.	Recurrence in scars; a gland-mass in right neck excised.	Death three months after operation.
13	L. Geyer (and Jahn).	1898	"Ueber die chronischen Hautveränderungen beim Arsenismus und Beobachtungen über die Massenerkrankungen in Reichenstein." (49)	M.	35	Had chronic arsenical poisoning from the drinking water.	Melanosis and warts on hands and feet.	Middle finger of right hand.	Not stated.	Amputation of affected finger.	Not stated.	Deaths with metastases in axilla and internal organs.
14	L. Geyer (and Habel).	1898	" " (49)	M.	50	" "	Keratosis and ascites.	Right hand.	"	Excision.	Axillary glands involved.	Death with internal metastases.

15	L. Geyer (and Habel).	1898	„ „ (49)	F.	40	Had "chronic" arsenical poisoning from the drinking water.	Melanosis and keratosis.	Middle finger of right hand.	„	Amputation of ulnar half of hand.	Healed well.	Death with chest symptoms some years after operation.
16	M. B. Hartzell (and H. W. Stelwagon).	1899	"Epithelioma as a Sequel of Psoriasis and the Probability of its Arsenical Origin." (3)	F.	35	Had taken arsenic over a long period for psoriasis.	Keratosis and corns of palms and soles.	Hand left heel, over left breast.	Positive.	General.	A mass formed in left groin and ulcerated.	Death two months after being first seen.
17	James C. White.	1899	Discussion on Dr. Hartzell's case. (4)	M	—	Had taken arsenic for psoriasis.	Keratosis of palms and soles.	Toe.	Not stated	Amputation.	Healed.	No recurrence 12 or 13 years later.
18	James Nevins Hyde.	1899	„ „ (4)	M.	—	„	„	Middle finger of left hand.	„	„	Infection of glands in axilla.	Suicide by morphia, on further operation being advised.
19	Karl Ullmann.	1900	"Zur Klinik und Histologie des Arsenik-Krebses" (40)	F.	37	Had taken Fowler's solution for six or seven years for acne.	Pigmentation of face; keratosis of palms and soles.	Face and left heel.	Positive.	Excision.	Recurrence in heel, partial amputation	Not stated.
20	H. Radcliffe Crocker and George Pernet.	1901	"Epithelioma supervening on Arsenical Keratosis" (31)	M.	60	Had taken arsenic for two years for psoriasis 40 years previously.	Small warty specks on hands.	Right hand.	„	„	Recurrence, followed by amputation of little and ring fingers.	„
21	Jonathan Hutchinson	1902	"Arsenic Cancer" (16)	M.	70	Had taken arsenic for long periods for a skin disease.	Keratosis of palms and soles	Right forefinger and back of right shoulder.	„	Amputation of finger and excision of ulcer on shoulder.	Recurrence in both neighbourhoods and enlargement of axillary and cervical glands.	„
22	J. Darier.	1902	"Melanodermie et Hyperkeratosie d'Origine Arsenicale, Cancer Arsenical" (45)	M.	47	Had taken large quantities of arsenic, prescribed for chronic bronchitis.	Pigmentation; keratosis of palms and soles	Both hands and neck.	„	Erasion and application of galvano-cautery.	Fresh ulcer on right upper eyelid.	General condition deteriorating.
23	Jonathan Hutchinson (and G. Buckston Browne).	1903	"Disorders of the Skin induced by Arsenic." (12)	M	62	Had taken arsenic for many years on account of psoriasis.	Doubtful.	Buttock	„	Excision	Fresh ulcer of face (excised) nine years later	Death five months after second operation (bronchopneumonia)
24	Jay F. Schamberg.	1906	"Multiple Cancer of the Skin and Keratosis, following the Long continued Use of Arsenic" (5)	M.	62	Had taken Fowler's solution at intervals for 25 years for psoriasis.	Keratosis of palms and soles, limbs, and trunk.	Hands, back, and right leg.	„	Amputation of right hand.	Numerous fresh lesions on back, scalp, &c.	General health still good three years later.
25	M. B. Hartzell.	1906	Discussion on Dr. Schamberg's paper (5)	M.	About 55	Had taken arsenic for long standing psoriasis.	Keratosis of palms and soles	Hand	Not stated	Excision followed by amputation.	Disease progressed.	Ultimately succumbed.
26	W. Dubreuilh.	1910	"Keratose Arsenicale et Cancer Arsenical." (47)	M.	71	Had taken large doses of Fowler's solution for 20 years for psoriasis.	Keratosis of palms and soles, &c.	Right middle finger, left thumb, and right foot.	Positive	Amputation of finger; excision of ulcers on thumb and foot.	Healed	Not stated.
27	Udo J. Wile.	1912	"Arsenical Cancer, with Report of a Case" (39)	M	29	Had for two years taken large quantities of arsenic for his complexion	Numerous keratoses or callosities on hands and feet.	Left ring finger	„	X ray exposures.	Great improvement.	Death soon afterwards from an operation on the genito-urinary tract.
28	Jay F. Schamberg.	1913	Multiple Epitheliomata of the Trunk, developing after Keratosis, in a Man who had taken Arsenic for years	M.	About 43	Had taken large quantities of arsenic for some years as a tonic.	Keratosis of trunk.	Right nipple and scores of epitheliomata all over the trunk.	Not examined	Operation proposed but not carried out.	Not known.	Not known.
29	Frederic S Eve.	1913	Epithelioma of Neck, due to Arsenical Irritation.	M	40	Had worked for 20 years in the preparation of arsenic for sheep-dipping	Pigmentation of skin, warts on hands.	Left side of neck.	Positive.	Excision, together with lymph glands.	Did well, and returned to work.	Well in February, 1913.
30	Charles R. Porter.	1913	Epithelioma of Shoulder and Chest Wall in a Man employed in an Arsenicated Sheep-dip Factory	M.	35	Had carried tins of arsenicated powder for 20 years.	Pigmentation of skin.	Left shoulder and chest wall	„	Excision, repeated; radium and X rays.	Involvement of lung, &c.	Death within two years of first operation.
31	R. J. Pye-Smith (and W. Harwood Nutt).	1913	"Arsenic Cancer"	F.	29	Had taken arsenic for psoriasis in childhood for three years.	Keratosis of palms and soles, &c.	Left hand, pubes, and vulva.	„	Amputation of hand; excision of ulcers and glands.	Internal metastases after six months.	Death a year after last operation.

"(*b*) A pigmented and thickened patch of skin from the back of the hand, papillomatous in type. This showed very extensive and irregular thickening of the epithelial layers of the skin. At parts the tissue was homogeneous in structure, all the cell outlines being lost, whilst at other parts there was evidence of marked degenerative changes in the cells. In the deeper parts of the skin layer there was extensive small-celled infiltration, and the projecting processes of epithelium were somewhat broken up by this infiltration. The epithelial cells were irregular and somewhat loosely connected with one another, but there was no definite invasion of the deeper tissue. I take it that this is an early stage in the development of the malignancy.

"In February, 1911, I examined: 1. An ulcer from the pubic region. This showed, in the deeper part of the tissue, very marked infiltration by epithelial cells. 2. Skin from the labium (ulcerated portion). The characters here were similar to those already described, and the condition was definitely epitheliomatous. 3. Skin from the labium (not ulcerated). Here there was no evidence of malignant growth, and there were no characteristic changes in the epithelium which might be associated with treatment by X rays. 4. Glands from both groins. There was a definite invasion by characteristic epitheliomatous cells."

Summary of Cases.

The following cases, of a similar character to the foregoing one, are summarised and tabulated before offering any remarks on the series. The last three of them have not been previously published. The first reference number given at the end of the heading in each case indicates the place of the original publication, whilst the other reference numbers refer to reports in journals, reprints, or summaries to be found elsewhere and often of more ready access.

CASE 1. *Epithelioma of the foot developing in a man affected with psoriasis;* Samuel Pozzi (52) (see also 8, 11).—A man, aged 45, whose excised epithelioma was shown at a meeting of the Anatomical Society of Paris in July, 1874, had suffered for 25 years from confluent psoriasis and presented epidermic warts, hypertrophy of the nails and of the skin beneath them, and an epithelioma of the foot, which last had gradually developed from a small excoriation dating from five years after the first appearance of the psoriasis. No later history is given.

(*Note.*—Though no treatment is mentioned, the presence of epidermic warts and hypertrophy of the nails, &c., is highly suggestive of arsenic having been administered for the psoriasis.)

CASE 2. *Development of an epithelioma on the finger of a man affected with psoriasis:* A. Cartaz (53) (see also 1, 8, 11, 54).—A man, aged 40, was shown at a meeting of the Anatomical Society of Paris in November, 1877, who had suffered from psoriasis for 23 years and exhibited minute warty scales on the palms and soles. One of these, on the palmar surface of the second phalanx of the right ring finger, had been scratched off, and the resulting ulcer had gradually enlarged and become callous. It was diagnosed as "cancroide," and the finger was amputated at the metacarpo-phalangeal joint a year after the ulcer began. No enlarged glands were felt in the axilla, but the gland above the internal condyle of the humerus was enlarged and hard. The case was reported within a week of the amputation, and no further history is given.

(*Note.*—No statement is made as to the treatment of the psoriasis with arsenic or otherwise, but as Professor Dubreuilh says (47), "the description of the lesions is sufficiently clear to permit of the diagnosis [of arsenical keratosis] being made.")

CASE 3. "*Psoriasis, verruca, epithelioma: a sequence*": James C. White (7) (see also 1, 8, 11, 12 (Case 1) and plates in 12, 14, and Hutchinson's Smaller Atlas of Clinical Illustrations (plate 20). There are also drawings in the Museum of the Medical Graduates' College and Polyclinic).—Dr. W., a medical man aged 27, practising at Boston, U.S.A., was first seen in 1865 for psoriasis of six years' duration, for which he had taken from time to time "considerable doses of Fowler's and Donovan's solutions." After observation for nine or ten years a change began to be noticed in the spots on the backs of his hands, which became raised into "callosities or some form of warts." Seven years later one of these raised spots on the right palm became excoriated and developed into an intractable ulcer. It was "deeply scraped." Then another similar ulcer appeared on the palmar aspect of the fore and middle fingers of the left hand and was "thoroughly curetted" Ulceration with induration followed in both places and epithelioma was diagnosed. Amputation being suggested, the patient went to Europe and saw Sir James Paget, Mr. Jonathan Hutchinson, Professor Billroth, and Professor Kaposi. This was in the autumn of 1883. In April, 1884, the patient (being then 45) submitted to amputation of his right hand above the wrist and of the fore and middle fingers of his left hand. Microscopic examination confirmed the diagnosis of epithelioma. Enlargement of the axillary glands followed, and the patient died 16 months after the operation. Post mortem malignant growths were found in the lungs, kidney, rib, and elsewhere.

CASE 4. *Epithelioma of wrist and perineum in a man who had taken arsenic for psoriasis:* James C. White (7) (see also 1, 8, 11, 12 (Case 2)).—A man, aged 52, consulted Dr. White for "a sore on his hand of several years' duration." He had had psoriasis from early manhood, and had taken arsenic for it. Ten years before being seen by Dr. White some of the patches on his hands had become transformed into warty outgrowths, and one of these had ulcerated and had resisted all treatment, including scraping and caustics. There was "an ulcer occupying the anterior surface of the right wrist," very similar in appearance to Dr. White's former case. There were no enlarged glands in the axilla, but a second small ulcer was found in the perineum. Both ulcers were freely excised, and microscopic examination showed them to be epitheliomata. The operation was followed by sloughing of tendons at the wrist, and a second operation for their removal was followed by acute cellulitis, which proved fatal six weeks after the first operation.

CASE 5. *Development of epithelioma in psoriasis:* Hans v. Hebra (50) (see also 8, 11, 42).—A middle-aged man, who had been subject to psoriasis since the age of 16, and had undergone many forms of treatment, presented himself with ulcers on the right arm and the external aspect of the right thigh. They had developed by the fissuring of warts, of which over a hundred, on various parts of the body, had been present for 12 years. The ulcers were scraped, and then the one on the thigh was excised and found, on microscopic examination, to be epitheliomatous. The patient died with fever and rapid loss of strength.

(*Note.*—Although no drugs are specifically mentioned, the fact that the patient had "undergone many forms of treatment" under Professor Hebra makes it highly probable that a long course of arsenic was one of the forms, and that to it are to be attributed the numerous warts, &c.).

CASE 6. "*Arsenic keratosis and arsenic cancer*": Jonathan Hutchinson, F.R.S. (1) (see also 8, 11, 23, 27).—The patient, a clerk aged 34, who "had long been under Mr. Hunt's treatment by arsenic for psoriasis," was seen by Mr. Hutchinson with Mr. Waren Tay in August, 1871. At that time soft corns on the palms and soles had been present for 18 months. In February, 18
formed on the scrotum, and in June it
and in the following month it was excis
no recurrence, nor were any enlarged glands found. No later information is given.

(*Note.*—This appears to be the earliest case of arsenic cancer observed—viz., in February, 1872.)

CASE 7. "*Arsenic keratosis and arsenic cancer*": Jonathan Hutchinson, F.R.S. (1) (see also 8, 11, 23, 27).—The patient, a married woman aged 25, had her case submitted by letter to Mr. (later Sir Jonathan) Hutchinson by Dr. (now Sir) Clifford Allbutt in 1883. In infancy she had been cured of pemphigus by arsenic, and on its recurrence in youth the patient had taken the remedy for herself and had got into the habit of taking it. The inner aspects of the hands and fingers then became very rough. Before 20 she was married, and when 25 she again consulted Dr. Clifford Allbutt on account of a large ulcer behind the crest of the ilium on the left side, which had developed in a spot of rough skin. The glands in the left groin were enlarged, and later a lump formed in the skin of the same thigh and the gland mass broke down. The patient died soon afterwards. No microscopic examination of the growths was made.

CASE 8. "*Arsenic keratosis and arsenic cancer*": Jonathan Hutchinson, F.R.S. (1) (see also 8, 11, and 12 (Case 3), 17, 23, 27). There is a framed drawing in the Museum of the Medical Graduates' College and Polyclinic.—The patient, a man aged 56, was sent for consultation to Mr. Hutchinson in 1886 by Professor John Chiene. He had for many years been the subject of psoriasis, and had taken much arsenic. Keratosis and corns of the palms and soles, with general hypertrophy of cuticle, had developed, and later two ulcers had appeared in the sole of the left foot over the ball of the great toe suggesting perforating ulcers, but not going deeply, and having thickened edges. Treatment by local applications and rest in a plaster case for months had failed to induce healing. After erasion and the application of solid chloride of zinc the ulcers healed. A microscopic examination of fragments removed was inconclusive. Afterwards cancer appeared in the skin of the left thigh, and a few years later the patient died of cancer of the stomach.

CASE 9. "*Multiple epitheliomatous growths developing in a case of psoriasis which had been treated with arsenic for more than 30 years*": W. Arbuthnot Lane (2) (see also 8, 11, 12 (Case 7)).—The patient, a man
spital in April, 1892, for an ulcer on
psoriasis, and "had for the last 30
the hospital. During the whole of
orm of Fowler's solution." There was an ulcer on the back of the forearm two inches in diameter, and apparently due to the fusion of four ulcers. It was excised and found to be an epithelioma. No glandular enlargement was detected. A year later the man came again with three small epitheliomatous ulcers, of seven or eight months' standing, on the scrotum and perineum. These also were excised and the administration of arsenic was stopped. Nine months afterwards two more small and not ulcerated growths were removed from the scrotum, and on examination were shown to be epitheliomatous, and a month later again (January, 1894) two more, making 11 in all. In one only of these the patient thought the ulceration had begun in a patch of psoriasis.

CASE 10. "*Arsenic keratosis and arsenic cancer*": Jonathan Hutchinson, F.R.S. (13) (see also 8, 11, 12 (Case 8)).—The patient, a man aged 35, who had taken arsenic ("20 bottles") when a young man for acne, stated that soon after leaving off the medicine "a crop of little wart-like indurations appeared on his scalp, and were followed some years later by corns in the palms of his hands. It was not till 10 years after he had left off the drug that one of these corns assumed malignant tendencies and excision was required." Six years later the appearance of a growth on the scrotum called for the same measure, and later still another growth on the scrotum was removed. On all these occasions a careful microscopic examination was made and the "structure pronounced characteristic of epithelial cancer."

CASE 11. "*A case of arsenical cancer*": Jonathan Hutchinson, F.R.S. (14) (see also 8, 11, 12 (Case 5) and three plates in 12 and one in Vol. IX of Hutchinson's *Archives of Surgery* (plate 168). There are also drawings in the museum of the Medical Graduates' College and Polyclinic).—The patient, a man aged 46, who from boyhood had been the subject of psoriasis and had taken arsenic liberally for many years, became affected with keratosis of the soles and many rough patches on the skin of the legs and elsewhere. Three years before he was brought to Mr. Hutchinson, in October, 1897, by Dr. J. E. Bullock, cancerous ulceration occurred just above the pubes. The glands in the right groin then became infected and broke down, the skin over them ulcerating. Another cancerous ulcer formed on the right side of the back, and "there appeared to be also a large gland mass within the brim of the pelvis." The patient died from exhaustion and pain. "Microscopic examination of portions excised from the ulcer for diagnostic purposes had been made by a highly skilled histologist with only negative results."

[illegible]

stein, and he had pigmentation of the skin and diffuse and circumscribed warts on the hands and feet. The course of the case was [illegible]

an axillary tumour formed and, after a further operation, the patient [illegible]

[illegible]

sulted the late Dr. [illegible] painful sore situated on the ulnar border of [illegible] metacarpo phalangeal joint of the little fin[illegible] a speck had formed in the skin and had [illegible] and for six months it had been ulcerated. [illegible]

[illegible] movable gland was [illegible] nd was excised by [illegible] tion in the neigh[illegible] of the hand, the little and ring fingers were removed. The microscope showed epitheliomatous growth.

CASE 21. *"Arsenic-cancer"*: Jonathan Hutchinson, F.R.S (16) (see also 12 (Case 6), 19, and plates in 12).—The patient, a man aged 70, [illegible]

[illegible]

some months. Keratosis of the palms then developed and ulceration soon appeared. Corneous patches were also present on the soles and [illegible]

[illegible]

whose palms and soles showed keratosis, was operated on by Mr. [illegible]

lesions [illegible]
small do[illegible]
violently at once. Plasters were an impossibility and liniments anathema."

[illegible]

(see also 37, also private letter).—The patient, a man aged about [illegible], who had taken *Fowler's solution for long-standing psoriasis*, was referred to by Dr. Hartzell in the discussion on Dr. Schamberg's case [illegible]

[illegible] succumbed.

CASE 26. *Arsenical keratosis and arsenical cancer*: W. Dubreuilh (47).—The patient, a man aged 71, was sent to Professor Dubreuilh in June, 1909, by Dr. Lafaye for an ulcerated growth on the right middle finger. For 20 years he had had patches on the elbows and knees (prob[illegible]

[illegible] e specimens and [illegible] (Full histological [illegible] n in the paper.) [illegible] with photographic [illegible] years had taken [illegible] ght of arsenious acid) for his complexion, began, two years after discontinuing them, to develop a horny condition of the palms and soles. Numerous small warty growths and callosities also appeared on the dorsa and sides of the hands and feet, and a year later "one of these small horny callosities on the ring finger of the left hand broke down, and, attended

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[2] Misprinted "left" in the Journal of Cutaneous Diseases (33).

with considerable pain, the ulcer, which had hard, raised edges, slowly grew, till it nearly encircled the distal joint of the finger." Sufficient material from the edge of the ulcer was curetted away to demonstrate clearly in sections the epitheliomatous nature of the lesion. The epitrochlear and axillary glands were not enlarged. After nine short X ray exposures the ulcer underwent distinct involution, its size being reduced by about one-third and the pain being entirely removed. Unfortunately, the patient died at this time from sepsis following an operation on the genito-urinary tract.

CASE 28.—*Multiple epitheliomata of the trunk, developing after keratosis, in a man who had taken arsenic for years*: Jay F. Schamberg. (Private letter [illegible] meeting of the Philadelphia [illegible] physician aged about 43, who [illegible] ation as a tonic over a period of years, became covered ov[illegible] small keratoses, with telangiectases, and [illegible] growths. One growth, involving the right nipple, was so pronounced that its removal was advised, but the patient did not return, and the [illegible] is not known.

[illegible] *neck, due to arsenical irritation*": [illegible] communication.)—The patient, a man [illegible] n the preparation of material for sheep-dipping (viz., sulphur, soda, and arsenic), who had for two years noticed a small and nearly painless growth above his left collar-bone, was admitted, on July 3rd, 1910, into the London Hospital under the care of Sir Frederic Eve, to whom he had been sent by Dr. C. R. Porter, of Berkhamsted. There was marked pigmentation of the entire skin, with mottled brown areas, extreme keratosis of the palms (which last, however, the patient stated to have been present before he began the work), but not of the soles, a large number of warts on the back of both hands, and an epitheliomatous growth a little above the middle of the left clavicle. This was an inch in diameter, raised and ulcerated, with hard and somewhat everted edge. It was not deeply fixed, and no enlarged glands were detected. Two small areas of desquamating skin were present below the left clavicle. On August 8th the growth was excised by Mr. R. Warren, together with the glands of the left suprascapular triangle and one of the warts on each hand. [illegible] rcinoma; no keratinization; large [illegible] little protoplasm, the cells resemb[illegible] patient was discharged well a fortnight later and returned to work. He continued well when seen by Dr. Porter in February, 1913.

CASE 30. *Epithelioma of shoulder and chest wall in a man employed in an arsenicated sheep-dip factory*: Charles R. Porter. (Unpublished communication.)—The patient, a man aged 35, employed for 20 years in carrying tins of sheep-dip (a powder containing sulphur, soda, and arsenic), consulted Dr. Charles R. Porter in February, 1910, for an ulcerating epithelioma on the left shoulder, which had began as a wart eight months previously. There was marked pigmentation of the skin all over the body. He was sent into the West Herts Hospital, where the growth was excised, and on microscopical examination it proved to be an epithelioma. Recurrences soon occurred in the skin of the chest wall below the scar, and were removed two months and [illegible] the first operation. As growths still returned [illegible] with radium and with X rays at the London [illegible] under the care of Dr. J. H. Sequeira, further operation being considered useless. He suffered great pain, and for a long time he took morphia in large doses. The growths ulcerated and appeared to involve the ribs on the left side both anteriorly and posteriorly. He had continued cough and repeated profuse hæmoptysis. After being confined to bed for six months with increasing weakness he died in December, 1911.

Addendum.—The foregoing cases comprise all that I have been able to find with histories sufficiently conclusive and complete to warrant their being placed in the list. Among them have been included three cases of psoriasis (Nos. 1, 2, and 5) in which, indeed, the history of arsenic is not conclusive; but it has been considered justifiable to include them, because at the time of their occurrence no suspicion rested on arsenic as a contributory cause of cancer, so that its administration, which was so usual for that disease, especially in England and France,[4] during the latter half of last century, may easily have escaped being mentioned, and also because they all exhibited a warty condition of the skin, which is no part of psoriasis, but is frequently seen in arsenicism. They find a place also in the lists of Nielson[5] (8 cases), Hartzell[6] (11 cases), Dubreuilh[7] (20 cases), and Wile[8] (18 cases).

There are other cases, however, to be found in medical literature where the details are too scanty for a satisfactory record, or where, though there may be a reasonable suspicion of its presence, no history of arsenic is given.

Dr. L. Geyer refers (49) to two further cases seen by Dr. Habel, who, however, had lost the notes, where cancer had developed in persons drinking the arsenicated water of Reichenstein.[9]

Dr. H. W. Stelwagon gives a plate (57) showing an epithelioma of the palm of the right hand which had "developed from a keratosis, in a case of psoriasis, [illegible] ministration of arsenic. Possibly, however, [illegible]

M. Tillaux recorded a case (56) where a patch of psoriasis on the back of a middle-aged man had become the seat of an epithelioma, which, when removed by M. Tillaux, was "as large as the crown of a man's hat." The patient had consulted M. Hardy for psoriasis 11 years previously, but the medicinal treatment is not given.

Herr von Neumann (41) showed a man at the Vienna Society of Dermatology who had diffuse psoriasis and an epithelioma of the lower lip, but medicinal treatment is not mentioned.

Dr. C. W. Allen, in the discussion on Dr. Hartzell's first case (4), recalled a case so similar that he thought it was perhaps that of the same patient.

The late M. Du Castel recorded (46), under the title of "lichen corné," the case of a man aged 50, in whom epithelioma on the internal malleolus supervened after he had suffered for many years from well-marked hyperkeratosis of one of the upper and of both the lower limbs. Drug treatment is not mentioned.

Dr. G. W. Wende reported[10] an interesting case of keratosis, resulting in multiple epitheliomata, in a man aged 37, in whom "no history of arsenic had been obtained," but who had "indulged in a few patent medicines." Dr. Hartzell, the late Dr. Nevins Hyde, and Dr. Schamberg, who took part in the discussion, all suspected that the keratosis was of arsenical origin.

Sir Jonathan Hutchinson also mentions in his *Archives of Surgery* and in notes of cases illustrated in the Museum of the Medical Graduates' College and Polyclinic (Case 1, drawer 13) several cases of cancer and rodent ulcer in which he had suspicions, but no proof, of arsenic having been concerned.

(To be continued.)

THE RAPIDITY WITH WHICH CONTAMINATION OF THE THORACIC CAVITY AND ITS CONTAINED GLANDS FOLLOWS INFECTION OF THE PERITONEAL CAVITY.

BY C. C. TWORT, M.B., CH.B. ABERD.

(BEIT MEMORIAL FELLOW.)

(From the Laboratories of the Brown Institution.)

AS is well known, if a small quantity of an emulsion of a *non-pathogenic* micro-organism is injected into the peritoneal cavity of an animal, one of the earliest signs of an active resistance to the micro-organism on the part of the animal is a leucocytic invasion into the peritoneal cavity and phagocytosis of the injected material. The bacteria are taken up not only by the wandering phagocytes, but also by the sessile phagocytes of the liver, &c. Smears made from the liver, spleen, mesenteric glands, and peritoneal fluid about 12 hours after the inoculation will usually show the presence of a large number of bacteria, and free bacteria in the peritoneal fluid may be no longer found. The majority of the bacteria in the invaded organs and in the peritoneal fluid appear to be destroyed *in situ*, but of those taken up by the liver many are excreted with the bile and leave the body with the fæces. There is no apparent influence on the animal's health, and we say that the animal is immune to the particular bacterium which is unable to grow and multiply on account of the destructive agents of the host. A somewhat different result will be obtained after an intravenous inoculation. In this case the majority of the bacilli become lodged in the lung, although here, also, the liver and spleen both play an important part in the defence of the body, and some of the bacilli are excreted by way of the intestinal tract. With this method of inoculation, however, the kidney is the chief excretory organ and it may be severely damaged as a consequence of the inoculation of too large a dose even if a saprophytic micro-organism is used. Numerous experiments bearing on this question have been performed at the Brown Institution.[1] On inoculation of a *pathogenic* bacterium the mechanism of defence appears to be more or less the same, but it is less efficient, the efficacy varying with the virulence of the bacillus for the particular animal used and the resistance of the animal to the bacillus; the survival or otherwise of the animal depends entirely on these factors.

In naturally acquired diseases one is justified in assuming that much the same mechanism of defence takes place. Such would be the case in a general infectious peritonitis, or in a localised peritonitis where there is an invasion of leucocytes and the formation of an abscess

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[4] This is probably the explanation of the opinion of Bazin and of Hardy that they "had seen cancer develop frequently enough in those affected with psoriasis to believe in a certain connexion between the two maladies" (8, 11). Paget expressed the same opinion (27).

[5] Melanosis et Keratosis Arsenicalis, translated by Dr. Elkind (10).

[6] Epithelioma as a Sequel of Psoriasis and the Probability of its Arsenical Origin (8, 11).

[7] Kératose Arsenicale et Cancer Arsenical (47).

[8] Arsenical Cancer, with report of a case (39).

[9] On the other hand, he erroneously credits Power with recording a case of arsenic cancer in a report to the Local Government Board. The cases described by Sir William Power (Report of the Medical Officer of the Local Government Board, 1878, No. 5, p. 31) in an epidemic among infants at Loughton, due to the use of a dusting powder containing arsenic, were not cancerous.

[10] Keratosis Follicularis Resulting in Multiple Epitheliomata, Dr. Grover W. Wende (6).

[1] Centralblatt für Bakteriologie, Band lxviii., 1913.

It is well known, as regards the phagocytes, that the majority of micro organisms are not killed immediately on being engulfed, and, indeed, among pathogenic bacteria a large number are capable of multiplying within these cells, while others are nearly always intracellular and appear to develop almost exclusively in this situation Many pathogenic bacteria which on inoculation are able to multiply are ultimately killed out if the host does not succumb before it has had time to produce the necessary *protective anticorps*

The important organs in the mechanism of defence and the prevention of the bacteria from becoming generalised and causing death of the animal from septicæmia, &c , are the lymphatic glands which act as filters to the lymph, and hold back foreign particles The blood is thus kept more or less free from infection, and the vital organs of the animal economy are less likely to become infected In the case of diseases affecting the peritoneum or the organs covered by a peritoneal membrane, it is generally considered that the abdominal lymphatic glands are the chief agents in preventing a generalised infection, while in diseases of the lung the bronchial glands are held to play a similar part It is also held that in man tuberculous peritonitis is an infection through the intestinal tract, while on the other hand phthisis is an infection through the respiratory passages , a theory which is supported by the fact that a relatively large number of cases of tuberculous peritonitis have the bovine type of tubercle bacillus as causal agent (infection through milk), while tuberculous disease of the lung is nearly always due to the human tubercle bacillus This theory is not free from objection, seeing that in many diseases the site of inoculation does not prevent the disease from being ultimately produced in its usual situation, although, of course, it influences markedly the severity of the subsequent infection

A number of experiments bearing on the distribution of the bacilli in the lymphatic glands after the inoculation of an emulsion of bacilli into the peritoneal cavity of rabbits, rats, and mice, and the rapid escape of the bacilli from the peritoneal cavity, have recently been carried out at the Brown Institution The experiments on the rapidity of escape of the bacilli from the peritoneal cavity were performed as follows Emulsions of bacilli of the acid fast group, such as the tubercle bacilli, Johne's bacillus, and B phlei, and of various non acid fast micro organisms, such as B pyocyaneus, B subtilis, B coli, and several varieties of micrococci were inoculated into the peritoneal cavity of the above mentioned animals, mice being used in most cases The quantity of emulsion inoculated was 0 1 to 0 2 c c for mice, about double this amount for rats, and 1 to 2 c c for rabbits The animals were killed at varying intervals of time after the inoculation, and a microscopical examination made of the different lymphatic glands special attention being given to those of the thorax Where living emulsions were used cultures were also made from the glands The animals were killed by crushing the cord and medulla, care being taken [illegible] ch would interfere with the [illegible] To obtain the glands one [illegible] ck and the pectoral muscles removed from the thorax, which is opened with great care so as no[illegible] thoracic [illegible] from the [illegible] the inter[illegible] and rats is nearly always prominent, is smoothed down and one of the lobes is carefully raised, when the tiny lymphatic glands, about a pin's head or larger in size at the apex of the thorax can be seen One of these glands is snipped off with fine scissors and after being cut into pieces in a sterile tube it is inoculated on to tubes of suitable medium Another gland is then taken and a smear made for microscopical examination Needless to say, the manipulations must be carried out under strict aseptic precautions Emulsions of acid fast bacilli proved to be the most suitable for these experiments, both on account of the acid fastness of the bacilli and the relatively low degree of virulence of most varieties for the animals under consideration For many reasons it has been found that an emulsion of Johne's bacillus is the most convenient Johne's bacillus is an acid fast micro organism allied to the tubercle and lepra bacilli and is the causal agent of an intestinal disease of cattle, sheep, &c , called Johne's disease *It is impossible in this* paper to discuss the special biological features of the bacillus, but details will be found in the monograph on Johne's disease by F W Twort and G L Y Ingram *It need only* be mentioned here that the bacillus is pathogenic for mice and rabbits, and possibly for rats, and that it is several months before the intestinal tract becomes *infected*

The experiments that have been performed demonstrate that, although the peritoneal cavity is provided with an extensive protective mechanism inoculated bacilli escape from this cavity and can be found living and virulent in the thoracic glands shortly after inoculation The rapidity with which this transmission takes place is remarkable, the bacilli being found from two to five minutes later in the glands, and from these cultures may be easily obtained The bacilli found at the end of five minutes are mostly free but a few may be already within the cells, and as the interval of time between the inoculation and the death of the animal is extended the number of bacilli not only becomes progressively greater, but the proportion of intracellular to extracellular is relatively much higher than in the animals killed earlier It is interesting to note that as early as five minutes after the inoculation of the animal cultures can also be obtained from the pleural fluid, but the possibility of contaminating the fluid during the manipulations by the severing of the lymphatic channels is evident On examination soon after inoculation, of the cervical, submaxillary, axillary, and groin glands no bacilli can be found No bacilli were found microscopically in specimens made from the thoracic glands and pleural fluid of animals that were killed before making the intraperitoneal inoculation and an examination made five minutes later A sufficient number of experiments of this description have not yet been performed to allow of very definite conclusions being drawn from them, although positive cultures were obtained It does not necessarily follow that the human subject would react in the same way as the animals used in these experiments, but there is no reason to suppose that the reaction would be different If bacilli other than acid fast bacilli are used they also rapidly invade the thoracic glands, and cultures can be obtained in the same manner If a mixture of an acid fast bacillus and some other micro organisms such as one of the various cocci or bacillus coli is inoculated, the bacteria soon find their way to the thoracic glands but if the animal survives the inoculation all the bacteria disappear within a few days with the exception of the acid fast bacilli, which, although not multiplying perceptibly remain alive for many months

There does not appear to be much difference in the number of bacilli found in the mesenteric and thoracic glands in animals killed about two to five days after being inoculated, although even as early as this, where the quantity of emulsion inoculated has been small bacilli are found in the thoracic glands more c[illegible] period—at an [illegible] with Johne's [illegible] become less [illegible] glands they remain numerous for several months, but ultimately disappear in an animal unsusceptible to the particular bacillus inoculated Among 55 rats and mice inoculated intraperitoneally with acid fast bacilli, and examined over a period of three months bacilli were found on microscopical examination in the thoracic glands alone 17 times, and in the mesenteric glands alone 5 times In 7 of the animals bacilli were present in both sets of glands, while in 26 cases they were entirely absent Johne's bacillus was also found in the cervical and axillary glands of rabbits and mice All varieties of acid fast bacilli do not seem to react exactly the same as regards their distribution in these glands—for example, tubercle bacilli seem to have a greater tendency than Johne's bacillus to remain in the mesenteric glands, and the species of animal used in the experiment also appears to influence the result to a certain extent For a prolonged experiment it is better to use a living emulsion than a heated emulsion, as with the latter there is a greater tendency to accumulate at definite sites and to produce a more rapid caseation of the tissues It is also possible to perform culture experiments parallel with the microscopical examinations cultures often being obtained when no bacilli could be demonstrated in the smears from the glands This is especially the case with Johne's bacillus, which survives for a great length of time in most of the small animals, cultures from both the mesenteric and thoracic glands being positive in every animal. With the tubercle bacilli growths were more difficult to obtain, and it is obvious that rats and mice destroy these bacilli much more quickly than they do Johne's bacillus. If one is dealing with a bacillus that develops preferably in a special part of the anatomy of the animal used, then it will be found in this situation as is the case with Johne's bacillus. An emulsion of Johne's bacillus inoculated into the peritoneal cavity of a rabbit or mouse will, in some of the animals, eventually produce disease of the intestines and mesenteric glands, where a large number of bacilli may be found, while in the thoracic glands they may or may not be rare. One has here, however, an entirely different factor coming into play—that is to say, the question of the site of the animal body most suitable for the growth and multiplication of the particular bacillus. The place of predilection for the development of a bacillus has often little or no relation to the site of the primary distribution immediately after inoculation.

The inoculation of a certain quantity of oil into the peritoneal cavity to prevent any absorption of septic material has been recommended and has been practised fairly extensively, especially by continental surgeons. A few experiments bearing on this question were also performed, oil being inoculated from 15 minutes to 24 hours before the injection of the bacilli. Although the number of experiments in this direction have not been numerous, they demonstrate clearly that the oil does not prevent the escape of bacteria from the peritoneal cavity and their absorption by the thoracic glands, and it is doubtful if it in any way hinders the dissemination of the bacilli.

Incidentally, the above experiments point to a method by which acid-fast bacilli may be isolated from contaminating micro-organisms and recovered in pure culture in a relatively short space of time, and this means was utilised to isolate Johne's bacillus from the putrid gut of a sheep infected with Johne's disease. Tubercle bacilli were also isolated in the same way from emulsions of cultures purposely contaminated.

The time necessary for the escape of infectious material from the peritoneal cavity is thus often only a question of minutes, and it is obvious that even during an operation if the general peritoneal cavity is accidentally contaminated from the rupture of a localised abscess, &c., ample time is given before the end of the operation for the thoracic glands to become infected, and if these glands are penetrated there is a danger of the infection becoming generalised. These facts may explain the beneficial effect of Fowler's position after abdominal operations.

The expenses of these researches were partly paid for by a grant from the London University (Henry Dixon Fund), and I have also to thank the Royal Society for the grant which has enabled me to purchase the animals used in these experiments.

THE USE OF ARSENICAL COMPOUNDS FOR SYPHILITIC DISEASE OF THE NOSE AND THROAT:

A NOTE ON 16 CASES.

BY HAROLD L. WHALE, M.D. CANTAB., F.R.C.S. ENG.,
ASSISTANT SURGEON, THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.

I HAVE treated and followed the history of these 16 patients as follows: 12 in Mr. W. D. Harmer's and Mr. F. A. Rose's clinics at St. Bartholomew's Hospital, 1 in my clinic at the Metropolitan Ear, Nose, and Throat Hospital, and 3 in private patients.

The number of doses given.—These 16 patients have had 43 injections, varying from 1 per patient to 9 (two cases).

The relative advantage of different preparations.—12 injections were intravenous, "606"; 1 intramuscular, "606"; 26 intravenous, neo-salvarsan, "914"; and 4 intramuscular emulsion of "Allenburys" hyposol. All the cases were adults, and the dose was always the equivalent of 0·6 grm. of "606." When more than one injection has been given to any patient, sometimes the second injection was of a different drug from the first. As regards the clinical results and Wassermann tests obtained, in this small series no one preparation appears to be better than another. The advantage of hyposol emulsion is the extreme simplicity of giving it. For "914" may be claimed a very low toxicity. Not a single injection of the 26 given caused a sufficient general reaction to incapacitate the patient for a day, and the drug is given with justifiable confidence in the out-patients' clinic. Against "914" it may be said that many more injections are required to produce a clinical cure or a negative Wassermann reaction; this is illustrated in the tables given below. Some patients weary of the repeated injections, and defeat their cure by refusing to reattend hospital. After an intravenous injection the vein presumably becomes thrombosed and obliterated, either completely, or partially by a concentric phlebitis obliterans; and it is often found that on the next occasion another vein must be used. In 2 cases out of this series I was obliged, after several injections, to do an open dissection. The advantages and disadvantages of "606" are the converse of those of "914."

The interval between injections was one week, unless there were some local or general reaction, when it was two weeks.

The frequency of Wassermann tests.—As a rule the blood was tested after every second injection, except when a sudden change in the clinical picture indicated this test at other times. The blood was tested 48 hours after the injection.

Adjuvant treatment.—Between injections some of the patients had mercurial inunctions, others potassium iodide; the former yielded the better results.

The relation of Wassermann's tests to the clinical findings.—This is not exact. It is true that in none of these cases has a positive Wassermann reaction changed to negative without the patient being cured; moreover, if several doses are required the clinical cure will be complete sooner than the blood test becomes negative. But the converse does not hold good; and when after several injections the patient becomes cured of symptoms and progressive signs, but the Wassermann reaction remains positive, the injections have been stopped pending further recurrences of disease, which in this small series have not supervened during three months. The improvement of the general condition is sometimes most marked, more particularly when there has been some general reaction. In one case the red cell count rose, with two injections of hyposol, from 3,500,000 to 5,200,000 per c.mm

The diseases treated may be classified as follows:—

Inflammation or Necrosis of Bone or Cartilage.

No.	Bone or cartilage affected, and lesion.	Drug and number of injections.	Result.
1	Ethmoid necrosis.	8, of "914."	Separation of sequestrum; disease arrested.
2	Perforated hard palate (old-standing).	1, of "606."	Unaffected.
3	Perforated hard palate, 3 years' duration, ulceration now active.	3, of "606."	Improved, partly healed.
12	Perforated hard palate, one week's history.	1, of "914."	Cured, healed over.
4	Gummata of septum nasi and frontal bone.	2, of "606."	Cured.
5	Gumma of septum.	7, of "914."	"
6	Gummata of skull and of epiglottis.	1, of "606."	"
10	Periostitis of nasal bone.	2, of "606."	Improved.

Laryngitis with no Gross Lesion.

No.	Injections.	Result.
1	9, of "914."	Cured.
5	9, of "914."	"
9	1, of hyposol.	Uncertain.
11	2, of "606."	Improved.

*Gummatous Laryngitis, Nodular or Pachydermatous.**

12	1, of "914."	Improved.
13	2, of "606," then 1, of "914."	"
14	2, of "914."	Unaffected.

* As a result of the absorption of excrescences in the anterior commissure or on one cord Nos. 12 and 13 were subsequently able to phonate "a," which they had been previously unable to do.

Inflammation of Pharynx without Ulceration.

2	1, of "606."	Cured.
5	7, of "914."	"
7	2, of "914."	"
9	1, of "914."	Improved.
15	1, of "914."	Uncertain.
16	1, of "606," then 1, of hyposol.	Cured.

Inflammation of Post-Nasal Space without Ulceration, but with Exudation of Mucus or Mucopus causing Deafness.†

3	3, of "606"	Deafness cured.
7	2, of "914"	" "
15	1, of "914."	Uncertain.

† In all these cases of deafness the tuning fork tests had previously shown middle-ear deafness, no labyrinthine cases are included in this series.

Maxillary Sinusitis.‡

8	2, of hyposol.	Much improved.

‡ The improvement in this case of maxillary sinusitis, however, may have been due to the concurrent irrigation.

Conclusions.—Salvarsan and its allies offer a fair prospect of arresting tertiary syphilitic disease of the bones or cartilages of the nose and throat, syphilitic laryngitis, and non-ulcerative inflammations of the pharynx and nasopharynx. When repeated injections are not contra-indicated, either by technical difficulties or by unwillingness on the part of the patient, neo-salvarsan is the safest preparation to use.

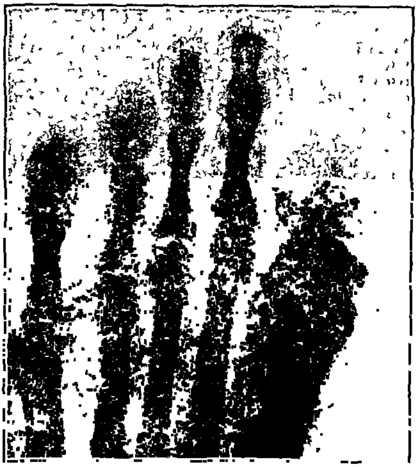
Harley-street, W.

EARLY DIAGNOSIS OF A CASE OF LEPROSY MUCH ASSISTED BY THE X RAYS.

BY THOMAS MILLER, M.D. MANITOBA.

ON Feb. 18th a Chinaman, aged 22 years, came to me complaining of general weakness and inability to work. [illegible] elicited merely a history [illegible] ut nothing more definite. [illegible] gs one was at once struck by the shortness of the left great toe, in which there was only the proximal phalanx to be felt, and that half the normal size. The nail was half the usual size and very much retracted. The extremity of the second toe was markedly bulbous There was no history of ulceration or abscess to account for the loss of the distal phalanx, and it was found that an area of the skin corresponding to the first and second toes and the distal halves of the metatarsal bones on both dorsal and plantar surfaces was slightly thickened and anæsthetic to pain and temperature. There was also a scar, three quarters of an inch in length, on the plantar surface of the great toe at the metatarso-phalangeal articulation, of which no history could be obtained.

FIG. 1.

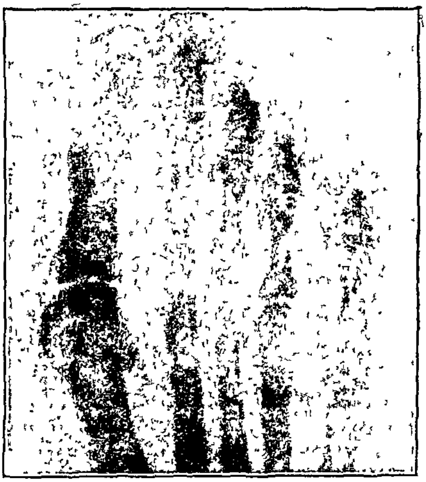


Left foot advanced changes.

A tentative diagnosis of leprosy was made, although no other signs of the disease could be found. The hands are normal.

Two days later Dr. E. S. Hasell, of the Royal Provincial Jubilee Hospital, Victoria, obtained X ray photographs of both feet, and these show most interesting alterations in the bones, confirming the diagnosis of leprosy. Of the proximal phalanx of the left great toe only half remains The distal phalanx of the second toe has almost disappeared and the distal phalanges of the other toes are also undergoing rarefaction, their shadows being more transparent than normal. The same changes are seen in the heads of the metatarsals. The changes in the right foot are similar, but less advanced.

FIG. 2.



Right foot changes commencing.

The left great toe is said to have been decreasing in size during two years, but the patient was unaware of the existence of anæsthesia until I directed his attention to it. Hence, I conclude that the earliest sign of leprosy may be alterations in bones which are made manifest by skiagraphic examination, and therefore venture to put this case on record, as any assistance in the early diagnosis of this so serious disease is of great importance and may help other physicians in difficulty.

Victoria, British Columbia.

INTERNATIONAL COMMITTEE FOR POST-GRADUATE MEDICAL EDUCATION.—A series of lectures on balneology and balneotherapeutics, arranged under the auspices of the International Committee for Post-graduate Medical Education, will take place at Karlsbad from Sept. 28th to Oct. 4th The list of lecturers includes, among others, Professor Dr. Albu (Berlin), Dr. Dautwitz (St. Joachimsthal), Professor Dr. Falta (Vienna), Privy Councillor Professor Dr. Fleiner (Heidelberg), Professor Dr. Fronz (Vienna), Councillor Professor Dr. Glax (Abazzia), Privy Councillor Professor Dr. Goldscheider (Berlin), Councillor Professor Dr. Grödel (Nauheim), Professor Dr. Hoffmann (Dusseldorf), Councillor Professor Dr. von Jaksch (Prague), Professor Dr. Kionka (Jena), Professor Dr. R. Kutner (Berlin), Professor Dr. Luthje (Kiel), Professor Dr. Mohr (Halle), Professor Dr. Plehn (Berlin), Professor Dr. Riehl (Vienna), Councillor Professor Dr. Schauta (Vienna), Privy Councillor Professor Dr A Schmidt (Halle), and Professor Dr. Strauss (Berlin). The lectures may be attended by medical practitioners on payment of a registration fee of 10 kr. for the entire series. For programme of lectures and cards of admission application should be made to the Kuramt of Karlsbad.

THE DECALCIFYING ACTION OF OXALIC ACID.

ILLUSTRATED BY THREE CASES OF OXALIC ACID POISONING.

BY H. J. B. FRY, M.B., B.CH. OXON., M.R.C.S. ENG., L.R.C.P. LOND.

RECENT physiological research has elucidated numerous facts concerning the part played by the calcium salts in the body processes. It is the object of this paper to endeavour to correlate the phenomena of oxalic acid poisoning with these facts. For Januschke[1] has shown experimentally that the general effects of oxalic acid poisoning are due to precipitation and removal of lime salts from the tissues rather than to a direct action upon the cells of the body as a protoplasmic poison. Hence the rôle of the calcium salts in the maintenance of the organic functions may be inferred from certain of the phenomena in the cases here quoted.

Description of Cases.

CASE 1.—Male, aged 38. The patient was brought to hospital with a history of having taken oxalic acid in a glass of water about three *hours prior to admission*. The amount taken could not be definitely determined, but was probably about 2 ounces (two pennyworth), since 50 grammes were subsequently found undissolved in the glass. The patient was collapsed. The face was livid, and the extremities were cold and blue. The pulse at times could not be felt at the wrist, but varied in strength and sometimes was just perceptible. The heart sounds were very weak and fluttering. At intervals general convulsive twitching of the muscles of the body occurred. Temperature 97·6° F., pulse 116. Apart from some ulceration of the tongue and pharynx physical examination revealed nothing else of importance. The amount of urine passed was small for about a week after admission and contained much albumin. Large quantities of oxalic crystals varying in size were fc [illegible] after admission. There [illegible] and the patient complai [illegible] soreness of the throat. Vomiting was persistent for about a week. A [illegible] rash appeared on the ninth day. The [illegible] whole surface of the back, extending only [illegible] rms and anterior surfaces of the thighs. It was of an exudative nature, causing much irritation, and had the general appearance and characters of a diffuse eczema. It disappeared rapidly *on* exhibition of *calcium* lactate, 15 grains three times *a day*, and did not recur. Muscular weakness and marked mental depression amounting to neurasthenia were prominent at a late stage after complete cessation of the acute symptoms, but a good recovery was ultimately made before discharge.

CASE 2.—Female, aged 19. In this instance the patient took threepennyworth of oxalic acid (3 ounces) in a quarter of a pint of milk one and a half hours before admission. The milk curdled on addition of the acid, the full amount of which was taken. The patient experienced no discomfort except dryness of the throat, but half an hour after taking the acid vomited some dark, reddish-coloured fluid. She was able to walk about half a mile to the hospital. There was a tendency towards collapse after admission. The body and extremities were cold and pallid. Temperature 96° F. The pulse showed marked variations in strength, being completely absent at times, then returning to a good volume and tension. Constipation and dryness of the throat were again noticeable, but vomiting was not so marked as in the first case. The patient made a rapid and uneventful recovery.

CASE 3.—Male, aged 64. The patient, a strong heavily built man, stated that he took two packets (? 2 ounces) of oxalic acid about one hour before admission. The face was cyanosed and the skin cold and clammy. There were repeated retching and vomiting of dark reddish fluid. There were no muscular twitchings or convulsions. The pupils were of medium size, reacted to light, and showed no alterations in size. Salivation was not marked. Temperature 97° F. The pulse could scarcely be felt, but varied greatly in strength. The heart [illegible] the first sound. A double aortic [illegible] ccompanied by a presystolic at the [illegible] iowed a brownish ulcerated area. Shortly after admission the patient became quite incoherent in his speech and maniacal, struggling violently. There was no general spasm or twitchings of the muscles. The reflexes were normal. The cerebral excitement passed off in a few hours after sleep and was followed by drowsiness. Vomiting and dryness of the throat persisted for about three or four days. There was suppression of urine for about 36 hours after admission. On the third day the urine contained a moderate amount of albumin but no blood. Epithelial débris, pus cells, granular and epithelial casts were present, and a few calcium oxalate crystals were noted. A fine tremor of both hands and twitching of the right arm were noticed on the same day. The pupils were somewhat dilated. The pulse and general conditions steadily improved and a rapid recovery took place.

The phenomena in the above cases which I desire to emphasise as due mainly to the precipitation and removal of calcium salts from the body are as follows:—

Muscular system.—The twitchings of the muscles, either local or general, described above receive a ready explanation from the experiments of Loeb and MacCallum,[2] who showed that muscular twitchings could be produced by salts capable of precipitating calcium in insoluble form, and that the twitchings were prevented by the addition of soluble calcium salts. Moreover, MacCallum and Voegtlin[3] have found that animals after parathyroidectomy show an increased elimination of calcium salts from the body, with consequent deprivation of the tissues, and these animals showed muscular twitchings, rigidity, tremors, &c.—a picture very similar to that seen in the acute stage of oxalic acid poisoning.

The muscular weakness observed in Case 1 after recovery from acute symptoms may be due to the diminution of the Ca factor in the balance between the Ca and K ions of the muscle substance, with a consequent intensification of the action of the antagonistic K ions. Mines[4] has shown that this results in a loss of muscular excitability and contractility.

The cardio-vascular system was markedly affected in all three cases. The fall in blood pressure, cyanosis, collapse, and loss of consciousness may be regarded as consequent upon the loss of tone and functional capacity of the heart muscle due to the washing out of the calcium salts, a well-known effect first established by the experiments of Ringer.[5] But the changes in the strength of the pulse observed in these cases are probably the direct expression of oscillations in the blood pressure due to the removal of lime salts setting up a heightened susceptibility of the sympathetic vaso-motor nerve endings to circulating adrenalin. *This increased susceptibility of the sympathetic vaso-motor* nerves has been demonstrated by Chiari and Fröhlich,[6] who found that animals which gave the ordinary blood pressure reaction when injected with adrenalin gave a further large rise of blood pressure when injected intravenously with non-lethal doses of oxalic acid, and that this could be counteracted by intravenous injections of calcium salts. These variations in the pulse would presumably be caused by either local changes of vascular tone as the process of decalcification occurred in various parts of the vascular system, or to variations in the tonus of the heart muscle. The alternations in the size of the pupils sometimes seen in oxalic acid poisoning may here be mentioned, as this appears to be another effect of this heightened susceptibility of the sympathetic nerve endings to adrenalin, since Chiari and Fröhlich[6] observed that normal animals gave no reaction if 1 per cent. adrenalin was instilled into the conjunctival sacs, whereas animals poisoned by oxalic acid showed marked mydriasis.

Nervous system.—The condition of cerebral excitement noted above in one of the cases is frequently seen after oxalate poisoning according to Kobert and Kussner,[7] and may be regarded in the same way as due to removal of lime salts from the brain. Sabbatani[8] found that a diminution in the lime content of the brain raised its excitability, and Maxwell[9] obtained muscular movements when the white matter of the motor area was stimulated by substances capable of precipitating calcium, such as sodium oxalate. The neurasthenic condition observed in one of the above cases may be another expression of the irritable weakness set up by the extraction of the lime salts from the nervous tissue, and in this connexion it is interesting to note that the general symptoms of neurasthenia are often observed in cases of oxaluria. The symptoms of peripheral neuritis, to which Sarvonat and Roubier[10] have directed attention in oxalic poisoning, were not observed in any of the above cases.

Cutaneous system.—The exudative erythema observed in Case 1 has not apparently been often observed as an after-effect of oxalic acid poisoning. That the essential cause of this exanthem is due to the precipitation and removal of lime salts from the blood is made clear by the experiments of Luithlen,[11] who found that subcutaneous injections of sodium oxalate increased cutaneous eruptions artificially induced by croton oil, but that subcutaneous injections of solutions of calcium chloride prevented the reaction. Chiari and Januschke[12] consider from their experiments that a diminution of lime in the blood increases the permeability of the vessels and *vice versâ*, while Wright[13] related the urticaria resulting from the injection of serums or after ingestion of vegetable acids to a diminution of lime salts in the blood with consequent serous exudations from the vessels. The value of calcium salts in such conditions has frequently been noted, and they appeared to be of use in the above case.

Urinary system.—The urine can always be found to contain a variable, but usually considerable quantity of calcium oxalate crystals, so that there can be no doubt about the actual precipitation and removal of calcium from the body by this channel The large quantity of albumin found in the urine is probably an exudation from the renal vessels similar to that which occurs into the skin, since casts are not frequently found

Alimentary system —Though the persistent vomiting which is often a feature of oxalic acid poisoning is sufficiently explained by the corrosive action of the poison on the gastric mucosa, yet it is permissible to suggest that the vomiting is aided by the increased activity of the sympathetic system from removal of calcium salts since the action of the sympathetics causes mainly dilation of the cardiac orifice of the stomach and contraction of the pylorus (Tigerstedt) a condition which would favour vomiting set up by the direct irritation of the acid On the other hand, the value of calcium salts in allaying persistent vomiting has long been recognised The constipation observed in these cases was possibly due to a loss of tone in the smooth muscle of the bowel wall from the same cause mentioned in the case of the skeletal muscles The medium in which the acid is taken is of some importance since, if taken in milk the lime salts therein combine with the acid and the fats act as demulcents

It is evident from the above that in treatment lime salts must be given not only at the commencement to precipitate the oxalic acid in the stomach but should be continued in *order to restore the salt lost by the process of decalcification* Owing to the slight degree of absorption of calcium salts from the gut, it is advisable to give them with fats with which they form calcium soaps these being more readily taken up (Dixon)

Conclusions —It is probable then, that the effects of oxalic acid poisoning manifest themselves in almost every system of the body These general effects are not merely secondary to cardiac depression, but must be regarded as due to a precipitation and removal of lime salts from the tissues None of the many other theories of the action of the poison accords so well with the facts or can be supported by experimental evidence

I am greatly indebted to Dr H G Turney, St Thomas s Hospital for permission to make use of the notes of the above cases

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St Thomas s Hospital S E

FOREIGN UNIVERSITY INTELLIGENCE —*Berlin* Dr Lentz, Director of the Saarbruck Institute for Hygiene and Infectious Diseases, has been appointed Director of the Imperial Health Office, with the rank of Privy Councillor, in succession to Dr Weber, Dr A Bickel has been appointed Lecturer on Experimental Pathological Physiology —*Breslau* Dr Felix Landois has been recognised as *privat docent* of Surgery —*Kiel* Dr Emmerich, assistant in the Heidelberg Pathological Institute has been offered the Prosectorship of the Municipal Hospital, Dr Konjetzny has been recognised as *privat docent* of Surgery —*Konigsberg* Dr Martin Nippe has been recognised as *privat docent* of Forensic and Social Medicine —*Leipsic* Dr Herbert Assmann has been recognised as *privat docent* of Medicine —*Modena* Dr Giuseppe Cardi of Pisa has been recognised as *privat docent* of Internal Pathology —*Munich* Dr von Hertling has been recognised as *privat docent* of Gynæcology —*Naples* Dr Giulio Jafolla has been recognised as *privat docent* of Physical Therapeutics and Dr Giuseppe Polito as *privat docent* of Internal Pathology —*Rio de Janeiro* Dr J Moreira da Fonseca has been recognised as *privat docent* of Medicine —*Salamanca* Dr Godoardo Peralta of Madrid, has been appointed to the chair of Anatomy —*Tubingen* Dr von Korff of Kiel, has been appointed Prosector to the University Anatomical Institute

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF OBSTETRICS AND GYNÆCOLOGY

Calcified Fibroma Obstructing Labour — Wertheim s Hysterectomy —President s Valedictory Address

A MEETING of this section was held on July 3rd, Dr AMAND ROUTH the President, being in the chair

Mr H S SOUTTAR read a short communication on a case of Calcified Fibroma of the Ovary Obstructing Labour —Dr HERBERT SPENCER Dr R DRUMMOND MAXWELL and Dr HUBERT ROBERTS discussed the case

Mr CHARLES P CHILDE (Portsmouth) read a paper on Suggestions for the Technique and Performance of Wertheim s Abdominal Hysterectomy He pointed out that the two conspicuous risks of the operation were shock and sepsis Certain conditions specially favourable to the occurrence of infection should be recognised (1) diminished resistance due to bad general health (2) a certain amount of injury to the tissues of the abdominal wall due to retraction required during the operation, (3) the presence of a pelvic wound open to the external surface through the vagina, and (4) the space of Retzius freely opened offering favourable position for the accumulation of fluids In some cases general infection from an ulcerating malignant growth was present at the time of operation Great care should be taken to avoid fouling of the wound surfaces when the vagina was divided Mr Childe s practice was to remove all the soft parts of the growth with scissors and sharp spoon as the first stage of the operation The raw surface was then freely cauterised and the vagina carefully dried and painted with 2 per cent iodine in spirit Finally, the vagina was closely packed with dry sterile gauze the end of which was left hanging out of the vulva, to be withdrawn when the vagina was divided later Another important point was the manner of dealing with the pelvic wound He had entirely given up drainage with gauze as recommended by Wertheim, and he now never employed gauze except for hæmostasis Mr Childe laid great stress on securing complete hæmostasis, and on leaving as few ligatures as possible in the pelvic wound In the easiest cases the operation was severe and prolonged, and shock could best be controlled by shortening the operative procedures as much as possible The longest part of the operation was dealing with the parametrium and the divided edges of the vagina He now employed only four ligatures (silk) one for each ovarian and one for each uterine artery The round ligaments and parametria were crushed with strong forceps and the tissues divided with Paquelin's cautery Bleeding from the vaginal walls could be avoided by applying a modified Wertheim s forceps to the part to be divided for a moment beforehand In this way a dry pelvic wound could be secured and the cautery would destroy cancer cells in the seared tissues Finally the peritoneum was sewn over without drainage, and the abdominal wound closed in layers A ligature or two might be required when separating the bladder A special crushing forceps designed by Mr Childe was shown —Dr SPENCER Mr DOUGLAS DREW, Dr H RUSSELL ANDREWS, Dr ETHEL VAUGHAN SAWYER Dr CUTHBERT LOCKYER and Dr H C TAYLOR YOUNG (Sydney, N S W) discussed the paper

The PRESIDENT then delivered his valedictory address entitled Observations on the Toxæmias of Pregnancy and on Eugenics from the Obstetric Standpoint," which was printed in THE LANCET of July 12th

Votes of thanks were passed to the retiring President to the retiring Vice President to the chairman of the pathology committee to the retiring honorary librarian and to the retiring honorary secretary, and the section closed for the session

EDINBURGH OBSTETRICAL SOCIETY

Fatal Cases of Jaundice in the New born Child —Treatment of Eclampsia by Veratrine —Cæsarean Section at Term for Fibroid in Twin Pregnancy —Twisted Ovarian Cyst

A MEETING of this society was held on June 9th, Dr J HAIG FERGUSON, the President being in the chair

The following were elected honorary fellows of the society Sir Francis H Champneys Bart, London, Professor James C. Edgar, New York; Professor Jean Fabre, Lyons; Professor Wilhelm Nagel, Berlin; and Emeritus Professor W. Stephenson, Aberdeen.

Dr. **JOHN MCGIBBON** read a paper on Fatal Cases of Jaundice in the New-born Child, with Notes of a Series in Successive Pregnancies. He referred to the more usual forms of icterus neonatorum, and especially dealt with a form of jaundice which was generally fatal, and which was associated with somewhat extraordinary changes in the blood, the essential features of which were a great reduction in the number of red cells in the blood and the presence of large numbers of normoblasts and megaloblasts. The disease had been described under various names, such as hereditary icterus and congenital familial jaundice. The majority of cases died within a week, some lived a few weeks, and occasionally an infant whose blood had shown all the characteristics of the disease recovered completely. Many infants who died with jaundice before modern methods of blood examination came into vogue were probably true examples of the disease. Isolated cases had been reported, but the majority had been members of the same family. Dr. McGibbon then gave short details of a series of cases. The mother had had six pregnancies, all of which went to full term except one, which terminated at the eighth month. *First pregnancy:* A male child born in September, 1902, with no jaundice, and never showing any trace of such. Now a healthy strong boy aged 10 years. *Second pregnancy:* A male child born in October, 1904, with jaundice, but recovered, and is now a strong, healthy, well-developed boy aged 8 years. At birth the entire body was a pale lemon tint which deepened next day. The spleen was much enlarged. A blood count of blood films showed the features characteristic of the disease. *Third pregnancy:* A female child born in April, 1906, full time, and well developed; jaundice well marked at birth, becoming rapidly profound. The spleen was enlarged and urine bile-stained. The child was in a very drowsy condition and died on the fifth day. Many blood films were taken which showed the same features. *Fourth pregnancy:* A female child born on July 20th, 1907, full time, and well nourished. Jaundice at birth, slight but distinct. The spleen was enlarged. The child had an umbilical hæmorrhage and died on the seventh day. Blood films showed the same changes. *Fifth pregnancy:* A female child, but stillborn, in December, 1909, at the eighth month. Jaundice well marked over the entire body. *Sixth pregnancy:* The last which this woman has had, delivery taking place in January this year. Child jaundiced. The spleen was enlarged. Died suddenly on the third day. No umbilical hæmorrhage on this occasion. The main changes in the morbid anatomy were as follows: small hæmorrhages under the peritoneum and in the lungs. The liver showed a great increase in the size of the islands, where blood formation was in progress. In two cases there was an increase of the connective tissue, and in one there was distinct blockage of the common bile duct at its entrance into the duodenum. The thymus and lymphatic glands showed active proliferative changes. The thyroid showed an increase of fibrous tissue, and Dr. A. H. Buchan and Dr. J. D. Comrie found an entire absence of colloid material. The kidneys showed some cloudy swelling only. The suprarenals were enlarged and also the seat of cloudy swelling. The pathology was obscure. The toxic theory was difficult to accept, because one would expect to find more pronounced changes in the kidneys. In the series of pregnancies which came under Dr. McGibbon's observation the mother was entirely free from any symptoms suggestive of anything toxic. So far as the series of cases under consideration was concerned there was not the slightest evidence of syphilitic taint, nor was there anything in the obstetric history suggesting syphilis. A recent Wassermann test of the mother's blood brought the report of "slightly positive." This, however, required further investigation. The most recent view appeared to be that this type of jaundice was due to some undue fragility of the red cells, whereby they became broken up by slight causes. The diagnosis could only be made by blood counts and blood films. The following points may be said to be established in congenital familial jaundice—viz., (1) It tends to affect several members of one family; (2) its essential features are jaundice visible at birth or becoming apparent within 24 hours, an enlarged spleen, and profound anæmia; and (3) syphilis as an etiological factor cannot be excluded as yet, but there is no evident connexion.—Dr. **JAMES RITCHIE** referred to a patient who had given birth to 11 children with no miscarriages. All the infants were born at term and were well nourished and healthy, but they all became jaundiced on the second or third day, and with the increase of jaundice they became anæmic. Four of them died from intense anæmia; the second lived only a few days; the seventh, who had also umbilical hæmorrhage; the eighth died on the thirteenth day; and the ninth on the eleventh day. Three others were seriously ill for about 14 days, but recovered. As to the causes of icterus neonatorum, he said it was ordinarily accepted that (1) in milder degrees it was due to changes in the circulation of the liver at birth with increased hæmolysis; (2) obstruction of bile ducts and an increased hæmolysis; (3) septic infection from the stump of the cord; (4) in syphilitic cases it might be due to interstitial hepatitis; (5) in Winckel's disease it might be due to hæmoglobinuria; and (6) in Buhl's disease there was fatty degeneration of all the tissues, the cause being probably sepsis. In his (Dr. Ritchie's) cases there was no suspicion of syphilis. In one of the cases the mother was very deeply jaundiced at the birth of one of her children. These cases occurred before the days of blood examination. There was a post-mortem examination on one infant, and enlargement of the liver and spleen was present with a large amount of free iron in the liver.—Dr. J. W. **BALLANTYNE** said that the most probable view seemed to be the toxæmic one due to the passage of toxins from the mother. The prenatal cases were probably the result of a toxin in the mother. If a toxin was circulating in the mother the first part of the infant to be attacked would be the liver from the blood in the umbilical vein. In some of his (Dr. Ballantyne's) cases the mother had a threatening of hyperemesis in the early months of pregnancy, and that was regarded as a toxæmia. He had tried calcium chloride with benefit in a mother who had several children that had developed jaundice.—The **PRESIDENT** mentioned a case where the first two children died from jaundice—one at a week and the second at two weeks after birth; the third was alive, and the fourth had died. He agreed with the view that these cases of jaundice were septic. Since adopting the method of Fabre (of Lyons)—namely, dressing the cord with absolute alcohol—he had found fewer cases of jaundice.—Dr. **MCGIBBON** replied.

Dr. F. W. N. **HAULTAIN** read notes on the Treatment of Eclampsia by Veratrone. Knowledge of the pathology of eclampsia, he said, was scant and imperfect and necessarily treatment was inefficient. Increased blood pressure seemed to be present in every instance. This was usually, though not invariably, associated with increase of the pulse-rate. This high vascular tension, whatever its cause might be, had much to do with the convulsive seizure, and much of the treatment recommended had been on the lines of its reduction. Blood-letting, thyroid extract, and the nitrites probably owed such little success as they had to this. Veratrum viride had been used with considerable benefit and was considered as a specific by some of the older authors. The tincture was impossible to administer by the mouth, and it irritated if given hypodermically. Messrs. Parke, Davis, and Co. had introduced veratrone, a hypodermic preparation of the essential alkaloids contained. Its paramount action was a vascular depressant, though it was also said to be a spinal sedative, a combined action which seemed ideal for the treatment of eclamptic seizures. It was made up in 1 c.c. ampoules and intramuscularly gave rise to no local untoward effects; its action was rapid. Dr. Haultain detailed seven cases of eclampsia treated with veratrone. The first case was that of a primipara who had two fits shortly after delivery. The urine was very scanty and solid on boiling. The blood pressure was 160 and the pulse 106. 1 c.c. of veratrone was injected. In 30 minutes the blood pressure was 120 and the pulse 75; in 70 minutes the blood pressure was 105 and the pulse 50. No further fits occurred. The only other treatment was a hot pack. Recovery. The second case developed fits shortly after delivery. Morphia was given repeatedly until 2 gr. were administered hypodermically, yet the fits continued. There were 11 fits in all. The patient's blood pressure was 160 and the pulse 94; urine solid. 1 c c. of veratrone was given, and in 40 minutes the blood pressure was 104 and the pulse 60. No further fits occurred. The other five cases were detailed. In all there was marked and rapid diminution in the blood pressure and pulse-rate after the use of veratrone, and the fits were inhibited while the vascular tension was low. The pulse would seem to indicate in a general way the diminution in pressure, and it might be assumed that a pulse of 60 or below indicated a tension consistent with safety. So far as could be learned, veratrum viride was not a dangerous poison, and could be given with comparative safety till the pulse fell below 50. It should also be noted that its action was somewhat evanescent, and the patient therefore must be carefully watched in case of a return of high pressure and subsequent fits, as was exemplified in three of his cases. One case was a woman six months pregnant in her second pregnancy; she had six fits and was treated with veratrone. This reduced her blood pressure, but in three hours it again rose with the occurrence of three fits, when another injection was given; the blood pressure was reduced and no more fits occurred. The urine in four days became clear of albumin and the patient's labour was now expected daily. The cause was here successfully combated. Such cases required most careful dieting and watching as regarded the return of the albuminuria. In treating eclampsia he (Dr. Haultain) had after a prolonged trial entirely discarded morphia. Blood-letting was a good vascular depressant, but the subsequent injection of salines seemed to do away with the good previously acquired. Chloroform would appear to act as a poison similar to that considered to be the cause of eclampsia and was dangerous. Beyond the hot pack to induce sweating, and washing out the stomach and at the same time leaving in it from 4 to 6oz. of salts, he used no other form of treatment in the cases recorded.—Professor R. G. McKerron (Aberdeen) said that he had given up veratrum viride long ago; he had given morphia of late.—Dr. A. H. F. Barbour said that his results had not been so good as regards the convulsions. He agreed there was nothing more remarkable than the extraordinary effect veratrone had in bringing down the pulse-rate and blood pressure, but this effect was transient.—Dr. J. Lamond Lackie said that the results were very striking. It was the convulsions that did harm, leading to other troubles, and anything which would control the convulsions was on the right lines. Veratrum viride was a very marked nerve sedative, and if the nervous system was irritable it was more liable to seizures. Veratrum viride might cause fainting if continued for a few days with a fall in the pulse-rate. He had found this in a case where it was given in the pre-eclamptic state. The patient passed through labour without any fits.—Dr. H. Oliphant Nicholson said that veratrum viride slowed the pulse by prolonging the ventricular contractions, and it lowered the blood pressure. It might if prolonged produce heart block. It was a dangerous drug to push too far. The blood pressure fell with a slow pulse; ordinarily with a slow pulse the blood pressure was high. It acted differently from morphia and thyroid extract, which acted as dilators. Dr. Haultain had mentioned that the urine was increased rapidly. That was the essential thing to treat in eclampsia. He himself felt disposed to try veratrone.—Dr. Haultain, in reply, said that veratrum viride was not a dangerous drug if given for one or two days till the pulse was down to 50; he had

injection rise in one case in two and a half hours, in others about three hours.

Mr. E. W. Scott Carmichael read notes on a case of Cæsarean Section at Term for Fibroid in a Twin Pregnancy. He said that these cases were comparatively rare. Pinard, Spence, Donald, and others, had shown how relatively numerous fibroid tumours were in the pregnant uterus and how relatively uncommon surgical interference was required. The patient was 42 years of age and a primipara, and was seen at the fifth month of pregnancy for severe attacks of abdominal pain. She was found to have the pregnancy complicated with two fibroid tumours. A tumour of the size of an apple, pedunculated and intensely tender, was attached to the fundus, and another in the lower uterine segment encroaching on the cervix. The first tumour was removed at the sixth month, and it was advised to allow the pregnancy to go to full time and perform Cæsarean section as the close proximity of the lower tumour to the cervix and pelvic brim rendered the probability of labour terminating naturally as very unlikely. The Cæsarean section revealed twins with distinct placentæ. Supravaginal hysterectomy was performed, considering the age of the patient and the position of the remaining fibroid. The twins, strong and healthy, weighed 5 lb. and 4½ lb. respectively. Only one other case of twin pregnancy in which Cæsarean section was performed had been recorded. Mr. George Robertson, of Dunfermline, performed that operation for eclampsia, and the mother and children survived.

Mr. Scott Carmichael also read notes on a case of Twisted Ovarian Cyst causing Strangulation of the Pelvic Colon and Intestinal Obstruction. The patient was six months pregnant and had been seized with severe abdominal pain and increasing distension of the abdomen. She had not passed fæces for two days and no passage of flatus for 24 hours, and was suffering from spasms of severe pain. A high-reaching enema gave no relief. Operation revealed the large intestine of a dark purple colour and greatly distended. This was punctured by means of a trocar and cannula. The strangulated intestine proved to be the pelvic colon of unusual length, caused by an ovarian cyst, which was also plum-coloured and had a long pedicle. The pedicle was twisted one and a half times on itself and encircled completely the base of the intestinal loop and constricted it. The intestine after relief began to resume a more normal appearance, so it was returned into the abdominal cavity. The patient recovered from the operation, but on the sixth day labour supervened, and the child only survived eight hours. The patient did well except for some mucous colitis.

British Oto-Laryngological Society.—A meeting of this society was held on July 16th, Dr. Frederick Spicer presiding.—Dr. Percy S. Jakins exhibited the following cases: (1) A man, aged 24, with a Plum-coloured Growth on the Left Vocal Cord; (2) a girl, aged 22, with a Small Sessile Growth upon the Left Vocal Cord; and (3) a woman with Perforation of

Specific Ulceration of the

rapidly under treatment by

regard to Case 1 (vascular laryngeal growth) that before making a definite diagnosis of its nature he would like to remove a portion and examine it microscopically.—Dr. H. D. McCulloch mentioned a case of papilloma of the larynx which was ultimately considered to be malignant, but which disappeared under treatment by ultra X rays. There had been no recurrence of the growth.—Mr. Charles Heath and Mr. J. Walker Wood concurred in the opinion that the diagnosis should be cleared up in the way Dr. Spicer suggested, but that if the growth were obviously innocent it should be removed by the indirect method.—Mr. Heath, in discussing Case 3 (specific ulceration), said from its appearance he had no doubt that the faucial ulceration was rapidly healing under treatment. The nasal septum, however, was showing less evidence of repair, and this was doubtless due to the non-vascular structure of the cartilage. — Dr. McCulloch exhibited four cases of Extreme Deafness (labyrinthine) showing improvement by treatment with the ultra X rays. — Dr. Spicer expressed himself as deeply interested at the results so far obtained in such hopeless cases; he would be glad to know more about this treatment.—Mr. Walker Wood said that in reference to the cases shown by Dr. McCulloch, he had personally examined and tested them before treatment and again three months later, after treatment. There was an undoubted improvement, and although it was but slight it was encouraging. He hoped on a subsequent occasion that Dr. McCulloch would contribute a paper to the society explaining his views of the nature and action of these ultra X rays.—Mr. Heath was also much interested in the cases which had been exhibited by Dr. McCulloch, and said that if the improvement in the hearing was not great it was unmistakable. This was a class of deafness which had not hitherto been relieved by any form of treatment, and if the X rays, utilised in this manner, were likely to be effective, the sooner the fact was known the better. He gathered that Dr. McCulloch had been giving attention to this form of treatment since 1908, and had read some of his publications on the subject in 1909 and 1910. Possibly at another meeting of the society Dr. McCulloch might be willing to read a paper upon this treatment, when it could be more fully discussed, and when there might be more cases available upon which to form an opinion of its merits.—Mr. Heath showed: 1. A case of Aural Suppuration of 40 years' duration in one ear and 38 in the other, with an interval of two years between the operations. There had been complete recovery, with excellent hearing on each side, after conservative mastoid operations by the method devised by the exhibitor of the case. 2. A case of Chronic Aural Suppuration of two years' duration with cholesteatoma in both ears (specimen shown), with perfect restoration of structure and function in each ear after conservative mastoid operation by the exhibitor's method.—Dr. Spicer congratulated Mr. Heath upon Case 1, and said the ears of this patient were the most satisfactory results of mastoid operations he had ever seen. With regard to Case 2, the result of operation showed how much advance there had recently been in the treatment of chronic aural suppuration; not long ago a patient such as this would have undergone the radical operation.—Dr. Pullin drew attention to the cosmetic effects of these two cases of double mastoid operations, and congratulated Mr. Heath upon the results.—Mr. Heath, in reply, said, with regard to the case of 40 years' duration, she was referred to him by Dr. Meggison, who did not anticipate that hearing could be restored, but in the hope that arrest of aural suppuration by mastoid operation might put an end to the severe headaches which had marred the whole life of the patient, whereas the result was that hearing had been restored to 20/50ths and 14/50ths, which was really excellent hearing; the headaches, too, had abated. With regard to the double cholesteatoma case, prior to the introduction of the conservative mastoid operation in 1906, Mr. Heath, too, would under such conditions—as Dr. Spicer had stated—have performed radical operations, and this patient would now be more or less deaf, whereas at present her hearing was more acute than the average girl of her age.—Mr. Walker Wood showed a Set of New Instruments used in conjunction with the Naso-pharyngoscope for the direct treatment of the Eustachian tubes.—Mr. Heath also exhibited several new instruments.—Dr. James Harper (Glasgow) read a paper on a New After-treatment of Intranasal Operations.

Reviews and Notices of Books.

Applied Pathology in Diagnosis and Treatment. By JULIUS M. BERNSTEIN, M.B., D.P.H., M.R.C.P., Assistant Physician to the West London Hospital, &c. London: The University of London Press. H. Frowde and Hodder and Stoughton. 1913. Pp. 395. Illustrated. Price 10*s.* 6*d.* net.

THE rise of clinical pathology has been one of the outstanding phenomena of the progress of medicine since the opening of the twentieth century. The exact status of those who practise it and the exact relation of this new science to pre-existing specialties are still not finally settled, in spite of serious debate upon these topics by several of those who delight in looking into the future of medical evolution and in seeking to direct the lines along which advance shall take place. The most philosophical and original section of Dr. Bernstein's book is the first chapter, wherein he expounds his own views on these points, about which he has evidently done some hard thinking. To begin with, he sees quite clearly that clinical pathology is, and will almost certainly remain, an adjunct to clinical medicine, not a substitute for it. No clinician is likely to dispute this view, and, indeed, it is only the youngest of bacteriologists who are apt to overlook it. He proceeds to express the belief that laboratory technique can be, and ought to be, handed over mainly to the skilled laboratory assistant, and to protest against the view that the trained and qualified clinical pathologist should spend his time cutting sections and counting leucocytes. Here, again, we think he is right, though a good many physicians may not agree. He is thus led to anticipate the day when the general practitioner will call into consultation not the present-day type of consulting physician, but a new breed of "physician-pathologist."

Certainly a transitional period is being passed through just at present. The general practitioner hears much of this "reaction" and that, of vaccines, hormones, and many other applications of organo-therapy. For the great majority of patients these aids to diagnosis and treatment are out of the question on the score of expense, unless, that is, the patient is in such circumstances as to be a legitimate candidate for a voluntary hospital. Apart from that, it is extraordinarily difficult for a man in general practice to sift the permanently valuable from the ephemeral of these complicated processes. He ends, sometimes, by distrusting them all; or, if his patients are willing, by adopting in turn each new fad, and neither course is right.

The author of this book seeks to do the conscientious practitioner, who has not time or training to enable him to discriminate for himself on matters of bacteriology, the service of summarising for him the value, the meaning, and the limitations of all the various investigations which the clinical laboratory now undertakes. He does not enter at all into the questions of technique, rightly judging that this want is well supplied already, and that the information would be useless to the readers for whom the book is designed. The task thus set is carried out in a very thorough and painstaking way. Throughout it is obvious that the author draws upon extensive personal experience, and is not content merely to echo the opinions of others. A tinge of the dogmatic is thus introduced, which in the circumstances is both necessary and advantageous. The whole tone of the book is practical, and as a summary of up-to-date knowledge in this branch is thoroughly trustworthy. There are, it is true, small points upon which clinicians would oppose the author's views. To give an instance, the hourly blood-count recommended in appendicitis is neither practicable nor sound in our personal judgment. Many observers, we fancy, would object to the distinction drawn between "physiological glycosuria" and the graver forms of disturbed carbohydrate metabolism. But these are minor details which scarcely detract from the high opinion we have formed of the book as a whole. There are far too many misprints, however; the most glaring is that which directs the intravenous injection of salvarsan in 300 ounces of solution.

The Rationale of Punishment. By HEINRICH OPPENHEIMER, D.Lit., LL.D., M.D. University of London Press. 1913. Pp. 827. Price 10*s.* 6*d.* net.

Dr. Oppenheimer's work is the first volume in a new series of Monographs on Sociology to be issued under the joint editorship of Professor L. T. Hobhouse and Professor E A. Westermarck, and, as is indeed implied by its appearance under such distinguished auspices, is an able and learned contribution to the study of the problem of which it treats.

The book is divided into two sections, the first discussing the origin of punishment and the second dealing with the various philosophical theories that have been advanced to explain its aims and its utility. Considered in its historical aspect, punishment as a social phenomenon has its source, according to Dr. Oppenheimer's view, in the collective sentiment of fear. This is to be inferred from the fact that the first acts punished as crimes appear almost invariably to have been such as imperilled, or were supposed to imperil, the safety of the community, especially by exposing it to the vengeance of the spirit world. We have evidence of this attitude in the constancy with which witchcraft is treated as criminal in primitive societies, and also in the special heinousness so frequently attributed to sexual misdeeds as being of a sacrilegious character. Revenge, on the other hand, would seem to be the source solely of civil justice, which remains quite distinct from criminal justice until that comparatively late period when it has come to be an accepted idea that an injury done to the individual is *per se* an injury to the State of which he is a member. From this consideration of the origin of punishment the author proceeds in the second half of his book to an analysis of its philosophy. After a critical examination of the several transcendental and political theories on the subject, he concludes with a modified acceptance of the doctrine of Anselm von Feuerbach, who maintained as the basis of his system the principle that legal punishment is the juridical, and in sound communities the inevitable consequence of a violation of the law, the threat of punishment being designed to prevent such violations, and its infliction being the proof that the threat is real.

Dr. Oppenheimer does not explicitly set forth his view as to the mutual relation of his historical and his philosophical conclusions, but it may be assumed from the very fact of his combining these two methods of inquiry in the same volume that he regards them as of like effect in lending support to the conservative attitude which he apparently adopts in regard to this problem. This supposition is confirmed by the concluding chapter of the work which is devoted to a criticism of what the author describes as "the modern doctrines of criminology." The connexion of this chapter with the rest of the book is, except from this point of view, rather difficult to understand, nor is its necessity in any wise very obvious; its argument is superficial and irrelevant, and fails to do justice either to the theories criticised or to the author's dialectical abilities. In reality the doctrine of social defence, which is the fundamental thesis of the criminologists whom Dr. Oppenheimer attacks so vigorously, is in essentials entirely compatible with the juridical principles laid down by von Feuerbach as the basis of his theory of punishment, and it is equally consistent with what we know of the origin of punishment and its influence in the history of the race. It is to be regretted that this very admirable volume should close on a note of needless controversy, and rather a false note at that.

Diseases and Injuries of the Eye. By WILLIAM GEORGE SYM, M.D. Edin., F.R.C.S. Edin., Ophthalmic Surgeon, Edinburgh Royal Infirmary. London: Adam and Charles Black. 1913. Pp. 493. Price 7*s.* 6*d.* net.

THIS book follows the familiar lines of the "text-book for students and practitioners," but is more characteristic of the personality of the author than is frequently the case. He is a man of strong views, but as he says in the preface "in certain instances, in which I could hardly avoid doing so, I have given frank expression to my own views, but as a rule I have given prominence to the generally accepted opinion." We may say at once that the book is a useful introduction to the subject for those for whom it is intended, as was only to be expected from one of wide experience obtained in so important a centre as Edinburgh. If we seem to cavil at some of Dr. Sym's statements it is because amidst a plethora of students' manuals we think that a very high standard should be reached by a fresh competitor.

The ordinary sequence is observed in the treatment of the subject, with the addition of two useful chapters on medico-legal questions and the nursing of ophthalmic patients. On p. 13 the minimum visual angle is stated to be one second instead of one minute. We warmly commend the advice not to treat the symbols $\frac{6}{6}$, $\frac{6}{12}$, and so on, for visual acuity as vulgar fractions. We do not agree that retinoscopy can be performed at 8 or 10 feet "quite well." Dr. Sym's remarks on the unnecessary use of mydriatics in determining refraction represent, we believe, the somewhat strongly held opinion of Edinburgh ophthalmologists. In opposition to many others we agree with his remarks, but only in so far as they apply to experts of considerable experience. Hence we think it unwise that they should find a place in a student's manual. The beginner will often be led astray if he does not dilate the pupils. A chalazion or tarsal cyst is not a "cyst by retention" (p. 86). On p. 174, *apropos* of breaking down iritic adhesions by the alternate use of atropine and eserine, we read "such procedure comes perilously near to malpraxis." If it had been stigmatised as extremely foolish we should have agreed, but malpraxis, where no permanent harm is likely to accrue, is too strong a term. On p. 302 we read: "It has actually been suggested that in a case of doubt one might apply a mild mydriatic, which would leave the iritis patient uninfluenced, but would increase and emphasise the glaucoma. Such procedure is utterly unjustifiable." In common with many others we disagree. There are cases of this type of the greatest difficulty for even the most experienced. If the balance of evidence is in favour of an iritis it is surely a wiser precaution to use homatropine, which in the event of error can be counteracted by eserine, than boldly to plunge with atropine, which in case of error will necessitate operative interference at a peculiarly unfavourable moment for operation.

Few pathologists will agree with these remarks on senile cataract: "Hard or senile cataract is that form in which the nucleus, having, as the patient became older, separated itself off from the cortex more and more completely, has undergone further changes and become not merely hard but opaque as well" (p. 186). "...... in all cases above middle life cataract must be cortical and nuclear." Prolapse of iris is not mentioned as a post-operative complication of cataract extraction.

There are other points of less importance which we have noted as inaccurate, but it would give a wrong impression if we dwelt unduly on these defects. There are available safer guides for the student than this book in its present state, but with careful revision it would exactly answer the requirements of those preparing for the ordinary qualifying examinations. The author's literary style is more picturesque than we care to see in a scientific text-book. It is at times stilted, at others colloquial—e.g., "the eager epithelium," "less fatally affected," the pneumococcus "lying in wait ready to spring," and so on. The printing and illustrations are good.

The Vertebrate Skeleton. By S. H. REYNOLDS, M.A. Second edition. Cambridge: University Press. 1913. Pp. 535. Price 15*s.* net.

THIS, the second, edition of a very useful handbook has been brought up to date and partly rewritten by the author and by Professor Williston. Its improvement over the first edition is further marked by the inclusion of a number of new illustrations from contemporary works, such as Mr. Goodrich's treatise upon fishes in the "Oxford Natural History" and Dr. Smith Woodward's "Vertebrate Palæontology." We have thus before us a very comprehensive, though in parts rather condensed, account of the main facts of osteology. The amount of matter to be drawn upon in this department of zoology is enormous, for not only the older authors, but many of more modern date have accumulated a vast store of osteological detail; thus condensation became obviously necessary. We do not find, however, that the authors have omitted points of first-rate importance, though here and there, as is inevitable, some details have been passed over. The existence of intercentra, for example, is so characteristic of certain groups of vertebrates that it might have been mentioned that these bonelets are to be found in the caudal region of the vertebral column of birds, but we cannot find any reference to this fact. Perhaps, also, some reference might have been made to the osteology of the Antarctic whale, neobalæna, which is so remarkably intermediate between the rorquals on the one hand and the right-whales on the other. There are a few other points which we have noticed where recent work has not been dealt with. It would be unfair, however, to press this criticism, since the authors have managed to include so much in their handy volume. We feel grateful for what they have put before us rather than regretful for what they have not.

Researches on Irritability of Plants. By JAGADIS CHUNDER BOSE, M.A., D.Sc., C.S.I., Professor, Presidency College, Calcutta. With 190 illustrations. London: Longmans, Green, and Co. 1913. Pp. 376. Price 7*s.* 6*d.* net.

THE works of Dr. Bose on "Plant Response" and "Comparative Electro-physiology" are well known both to physiologists and botanists. In the present volume the author has improved on the methods described in his volume on "Plant Response" published some seven years ago. To one familiar with nerve-muscle physiology it almost seems as if one was reading the results obtained on animal tissues. His researches show the wonderful similarity between the irritability of plants and animals.

The investigations were carried out chiefly on mimosa, desmodium, and allied "sensitive plants," although the author regards a sensitive plant as differing from others only in the possession of mobile mechanism by which excitatory change of form is manifested by a conspicuous movement. Beginning with what he calls "plant scripts"—i.e., the records of the movements of the leaf of Mimosa pudica—he finds that the ordinary graphic method is not sufficiently delicate. To record such movements he has invented what he calls a resonant recorder which gives a discontinuous or intermittent record instead of a continuous record or contact. Practically, the author has applied to this plant all the methods usually applied to animal tissues—nerve and muscle—and with in many respects the same result. As in skeletal muscle, so in the pulvinus of mimosa, the break induction shock is more effective than the make. The latent period of a vegetal "twitch" is one-tenth of a second, the maximum contraction is attained in three seconds, and the recovery completed in 15 minutes. Ineffective stimuli are summated; the effect of load, temperature, and many other conditions, such as fatigue, different gases, are much the same as on skeletal muscle. The responses under certain conditions exhibit a "staircase" increase. The "death spasm" in plants is comparable to the effects of heat on animal protoplasm. The whole physiology of the motile response from the pulvinus of the plant is very like that of motile response in the case of an animal.

Next the author deals with the velocity of a transmitted impulse, and the highest value in the petiole of mimosa he finds is 30 mm. per second. The excitation is transmitted in both directions, though the velocity is not necessarily the same in the two cases. As to the character of the transmitted impulse or excitatory state, the author shows by experiment that the prevailing belief that it is hydro-mechanical—a view largely based on experiments by Pfeffer and Haberlandt—is not the true explanation. It is a true excitatory state, which can be "blocked" by various physiological means as in a nerve. A very full account is given of the polar effects of elecrical currents of various strengths. The author finds that "with feeble currents the kathode excites at make and not at break. The anode excites at neither make nor break. With moderate intensity the kathode excites at make and not at break. The anode excites at break and not at make." So that the results in diverse sensitive plants are in every way similar to those in animal tissues. Most interesting are the contrasted effects of anode and kathode in the pulsating activity of Desmodium gyrans. In biophytum the characteristics of response are like those of cardiac muscle—a long refractory period and response on the "all-or-none" principle. To botanists the account of the pulsating leaflet of Desmodium gyrans will be particularly interesting. These slow jerking movements can be maintained uniform in a twig severed from the parent plant for a long time by subjecting it to internal hydrostatic pressure. The movements may be compared to the "systolic" contraction and "diastolic" relaxation of the motile organ. The effects of load, ligature, and chemical agents on these automatic movements are next considered. Ligature arrests them in "diastole" just as a Stannius ligature does the heart.

This is a most interesting, suggestive book, and we agree with the author that the study of responsive reactions in plants must be regarded as of fundamental importance in the elucidation of various phenomena relating to the irritability of living tissues. We commend the perusal of these "Researches" to botanists and physiologists alike.

Physiologie des Menschen und der Säugethiere. Von Dr. RENÉ DU BOIS-REYMOND, a.o. Professor, Abtheilungs-Vorsteher am Physiologischen Institut der Universität zu Berlin. Dritte Auflage mit 139 Text-figuren. Berlin: A. Hirschwald. 1913. Pp. 647. Price 14 marks.

THE work is divided into two parts. The first part (pp. 1–323) deals with metabolism in the broad sense—i.e., with changes of matter—and the second part (pp. 324–638) with the activities of the animal body. The author considers first the circulation, then in turn respiration, digestion, absorption, excretion, and foodstuffs. Under blood the account of its proteins seems to us rather meagre, and, moreover, nowhere do we find a composition table setting forth the chemical constitution of the blood as a whole or even of the plasma itself. We cannot say that the two figures meant to illustrate the valves in systole and diastole of the heart are very illuminating. No figure of any form of kymograph appears to be included, nor is there a figure of a blood-pressure tracing to be found in the short chapter on "Blutdruck," or blood pressure. What is the student then to make of the Traube-Hering waves, referred to in p. 61? *Per contra*, to the elaborate and now little employed respiratory apparatus of Regnault and Reiset and that of Pettenkofer much space is given. In place of these we should have preferred to see a fully illustrated account of the modern methods of measuring the blood pressure in man. Altogether about 126 pages are devoted to blood, circulation, and respiration. It can hardly be correct to say that the "inorganic salts" (p. 131) leave the body in the same form as they enter it. The chapter on digestion is interesting, and details of the differences between the digestive mechanism in carnivora and herbivora are given, though we failed to find any reference to the use of X rays in the study of the movements of the intestinal canal. The short account of digestion in the stomach in different mammals is both interesting and suggestive. It appears that during rumination only the parotid glands secrete, and secrete most copiously. The comparative physiology of digestion is one of the best series of chapters in the book and is well worth perusal by the student of human physiology. Absorption and lymph formation lead on to the blood as the intermediary, or internal medium of the inner metabolism. This brings the reader to blood formation and internal secretions. We failed to find any reference to the parathyroid, and the author, while indicating the effects of injecting adrenalin into the blood stream, omits to mention the very temporary rise of the arterial blood pressure that it causes, while nothing is said of the analogous action of an extract of the hypophysis. A good account of the urine in mammals is given, but the figure of a kidney (Fig. 47), copied from Owen, should be replaced by another or not reinserted. Taking it all in all, no doubt the treatment of metabolism is sufficient to meet the requirements of those students for whom the book is especially written.

To the subject of special muscular movements the author has devoted much study. The exposition of motion and locomotion in man and animals may be especially commended. Without illustrations we fear it will be difficult for the average student to make much of such subjects as Pflüger's law and conduction in nerves and in the cord. Too little is said about the "knee-jerk" and the conditions on which it depends. When dealing with cerebral localisation, an old figure by Obersteiner, showing motor areas on both the ascending frontal and parietal convolutions, is inserted. Would not Sherrington's well-known illustration be more satisfactory? Most of the remainder of the text is taken up with the sense organs, of which a short but adequate account is given. The author, though he explains the word "receptor," does not use it so extensively as it is used in the latest English text-books.

However, taking the book all round, apart from some of the shortcomings we have indicated, it is well written and fairly balanced in the treatment of the complex series of events that go to make up what is called the physiology of man and mammals. We should state that the reader is not distracted by the introduction of many names of observers. The introduction of a few historical dates of important physiological discoveries as landmarks might prove of value.

Trial of George Henry Lamson. Edited by HARGRAVE L. ADAM. London and Edinburgh: William Hodge and Co. Pp. 192. Price 5*s.* net.

THIS volume forms one of the series known as "Notable English Trials." The trial of George Henry Lamson is of particular interest to the medical jurist, inasmuch as it was the first case, so far as was known, in which the poison aconitine was used for homicidal purposes.

The volume has been admirably compiled from official Old Bailey Sessions Papers and the contemporary newspaper reports. As will be remembered, Lamson was tried and executed for the murder of his brother-in-law, Percy Malcolm John. It was proved beyond doubt that the deceased had died from the effects of a vegetable poison acting on the stomach and nerve centres. The poison was detected in the viscera and in the urine. At that time considerable difficulty existed in testing for vegetable poisons. Moreover, aconitine was a somewhat unknown substance, its properties and effects upon the human system not being exactly familiar to the medical faculty. Dr. T. Stevenson and Dr. T. Bond made important tests, principally by taste. They applied some of the alkaloid obtained from the body to their tongues, and a "biting and numbing effect" was produced; a precisely similar effect was obtained by a similar application of aconitine. They also made subcutaneous injections of the vomit into mice, so causing the death of the animals. Curiously enough, a description of the symptoms of poisoning by aconitine, similar in all its details to those exhibited by the deceased in his last illness, was found inscribed in a kind of pocket-book belonging to the prisoner. Also the latter's purchase and attempts to purchase the poison were clearly proved. There was some doubt as to the precise manner in which the poison was administered; the theory of the prosecution was that it was administered in a capsule, but a more probable vehicle was a portion of Dundee cake which the prisoner gave to the deceased.

Lamson was convicted of a cruel and callous crime, and the mystery of his character is not easy to fathom. At one time he was a "most humane man," but he acquired the habit of administering morphia to himself, and perhaps this might have brought about his moral deterioration. It is beyond doubt that in his later years he said and did things incompatible with complete sanity.

Modern Wound Treatment and the Conduct of an Operation. By Sir GEORGE T. BEATSON, K.C.B., B.A. Cantab., M.D. Edin., Surgeon, Western Infirmary, Glasgow, and Senior Surgeon, Glasgow Royal Cancer Hospital. Edinburgh: E. and S. Livingstone. 1913. Pp. 106. Price 2*s.* net.

WE are told by the author that this small handbook on the modern treatment of wounds is primarily the outcome of gratitude and reverence to Lord Lister, and that it is intended to give an account of the principles of the methods of treatment introduced by Lord Lister, with the various modifications which time and bacteriological science have rendered advisable. The author has succeeded in the task which he had set himself. The book commences with a sketch of the life and work of Lord Lister, and the account is very clear and readable, and gives a general idea of the main points in the new method. We thoroughly agree with the author in what he says of the artificial distinction which is often made between antiseptic and the so-called aseptic surgery. The remainder of the book deals with the application in practice of the principles of wound treatment in modern surgery. The preparations for operation are described, the conduct of the operation is detailed, and the after-treatment is also dealt with.

This little work should prove of value to dressers just entering on their duties in the wards, by enabling them to appreciate the importance of the duties entrusted to them, and to realise how much depends on the conscientious carrying out of the principles here laid down.

LIBRARY TABLE.

Surgical Pathology and Morbid Anatomy. By Sir ANTHONY A. BOWLBY, C.M.G., F.R.C.S. Eng., Surgeon in Ordinary to His Majesty the King and to St. Bartholomew's Hospital. Sixth edition. Edited with the assistance of Dr. F. W. ANDREWES, Lecturer on Pathology at St. Bartholomew's Hospital, Professor of Pathology in the University of London. London: J. and A. Churchill. 1913. Pp. 650. Price 10*s.* 6*d.* net.—Twenty-six years have elapsed since the appearance of the first edition of this work, and during all these years it has been regarded as one of the best expositions of surgical pathology. This, the sixth, edition will but add to the reputation won when the book first appeared. The changes which have been made in the present edition have been due mainly to Dr. F. W. Andrewes, and his name is a sufficient guarantee that the book is representative of our present knowledge, and though many recent results have been incorporated, the size of the volume has not been increased materially. The clearness and accuracy of the descriptions will enable even junior students to understand the more difficult problems of pathology; as an instance, we may cite the account of the Wassermann reaction. A few illustrations have been added.

(1) *Gynæcology for Nurses and Gynæcological Nursing.* By COMYNS BERKELEY, M.A., M.D., B.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., Obstetric and Gynæcological Surgeon to the Middlesex Hospital. Second edition, revised and enlarged. With 13 illustrations. London: The Scientific Press, Limited. 1913. Pp. 166. Price 2*s.* 6*d.* net. (2) *Obstetric and Gynecologic Nursing.* By E. P. DAVIS, Professor of Obstetrics in the Jefferson Medical College, Philadelphia; Obstetrician to the Jefferson Hospital.

Fourth edition, thoroughly revised. London and Philadelphia: W. B. Saunders Co. 1913. Pp. 480. Price 8s. net. —(1) In the second edition of this book the author has carried out a complete revision and has added a good deal of new matter. The size of the book has increased from 114 to 166 pages, an index has been added, and illustrations are given of the instruments required for various operations. The book has evidently met with a favourable reception and proved useful to nurses who wish to obtain not only a theoretical knowledge of gynæcological nursing, but also some information about the commoner gynæcological affections. In books of this description the temptation is always present to give too much information and to describe procedures which are outside the province of a nurse, however well trained or capable she may be. An instance of this is, we think, to be found in the elaborate table given for the examination of the urine, a most excellent one, we must admit, and very helpful, even to a medical man. We cannot admit, however, that it is the function of a nurse to examine a patient's urine, and in our opinion she should not be allowed as a nurse to take any such responsibility, and if this rule is followed, then such a table is out of place in a book intended for nurses. We hardly think that it is a common custom for a medical man to entrust the examination of the urine to a nurse before an operation, but we may, of course, be mistaken. The book contains a great deal of very useful information and is pleasantly written.—(2) It is not necessary for us to say anything in favour of a book which has reached its fourth edition and has met with so much praise as this work of Dr. Davis. It contains a large amount of information clearly expressed and arranged in an orderly manner. The chief feature of the work is the practical nature of the teaching and the common sense which distinguishes it. No doubt this revised and enlarged edition will meet with as favourable a reception as those which have preceded it, and will be read with interest and profit by many nurses and midwives.

Photomicrographs of Spirochetæ, Entamebæ, Plasmodia, Trypanosomes, Leishmania, Negri Bodies, and Parasitic Helminths. War Department: Office of Surgeon-General. Bulletin No. 1. January, 1913. Washington, D.C.—A very useful little collection of excellent photomicrographs reproduced in heliotype from original negatives which are in great part due to Dr. William M. Gray of the United States Army Medical Museum. These are accompanied by a brief explanatory text supplied by Major F. F. Russell and several collaborators. There are also directions for the preparations of specimens similar to those photographed No doubt they will prove, as hoped, of considerable help to medical officers in their study and diagnosis of the parasites considered. There are 17 plates which, with few exceptions, each contain four illustrations. The title gives the list of organisms dealt with. Amongst the most interesting, useful, and technically successful are the photographs of living specimens of entamœbæ. The illustration of leishmania is also excellent, and the work finishes with good representations of, and a very useful method for preserving the ova of helminths. The bulletin adds one more to the publications for which we are so deeply indebted to the Medical Department of the United States Army.

MISCELLANEOUS VOLUMES.

A number of collected papers on physiology and medical research, psychology, and eugenics are before us, as well as two guide books for those interested in socio-economic work.

Collected Papers from the Institute of Physiology, University College, London. Vol. XVII. Edited by ERNEST H. STARLING, M.D., F.R.C.P.Lond., F.R.S., Jodrell Professor of Physiology. 1912–13.—This volume contains the following 32 papers relating to work done in the University College Physiological Laboratory which have been collected from the *Proceedings of the Royal Society*, the *Journal of Physiology*, the *Review of Neurology and Psychiatry*, the *Biochemical Journal*, the *Biochemische Zeitschrift*, and the *Archiv fur die gesamte Physiologie*: The Sensory Fibres of the Phrenic Nerve, by G. C. Mathison; The Influence of Variations in Temperature and Blood Pressure on the Performance of the Isolated Mammalian Heart, by F. P. Knowlton and E. H. Starling; On a Simple Form of Stromuhr, by H. Ishikawa and E. H. Starling; The Gaseous Metabolism of the Heart and Lungs, by C. Lovatt Evans; On the Part Played by the Suprarenals in the Normal Vascular Reactions of the Body, and On Local Vascular Reactions and their Interpretation, by G. von Anrep; The Action of Carbon Dioxide on the Vascular System, by S. Itami; On the Nature of Pancreatic Diabetes (preliminary communication), by F. P. Knowlton and E. H. Starling; Experiments on the Consumption of Sugar in the Normal and the Diabetic Heart, by F. P. Knowlton and E. H. Starling; The Relation of the Islets of Langerhans to the Pancreatic Acini under Various Conditions of Secretory Activity, by John Homans; Note on the Fate of Secretin in Pancreatic Diabetes, by C. Lovatt Evans; On the Preparation of Secretin, by Wilhelm Stepp; A Simple "Frictionless" Tracing Point, by W. M. Bayliss; A Class Experiment to illustrate the Synthetic Action of Enzymes, by W. M. Bayliss; Further Note on Class Experiment to show Synthesis of Enzymes, by W. M. Bayliss; Researches on the Nature of Enzyme Action. II. The Synthetic Properties of Anti-Emulsin, by W. M. Bayliss; The Production of Heat in Decerebrate Rigidity, by W. M. Bayliss; The Amyloclastic Property of Saliva, by C. Lovatt Evans; A Criticism of Two Methods for the Determination of Amyloclastic Activity, by C. Lovatt Evans; Der Einfluss der Nahrung auf den Amylasegehalt des menschlichen Speichels, von C. Lovatt Evans; On the Nature of Animal Lactase, by Marjory Stephenson; Hydroxymethylphosphinic Acid and some Homologues, by Harold James Page; The Metabolism of Organic Phosphorus Compounds, their Hydrolysis by the Action of Enzymes, by R. H. A. Plimmer; The Hydrolysis of Organic Phosphorus Compounds by Dilute Acid and by Dilute Alkali; by R. H. A. Plimmer; An Investigation of Phytin, by R. H. A. Plimmer and H. J. Page; A New Test for Colour Blindness, by F. W. Edridge-Green; Simultaneous Colour Contrast, by F. W. Edridge-Green; Negative After-Images and Successive Contrast with Pure Spectral Colours, by A. W. Porter and F. W. Edridge-Green; New Visual Phenomena, by F. W. Edridge-Green; Dichromatisches Sehen, von F. W. Edridge-Green; Colour Adaptation, by F. W. Edridge-Green; Trichromic Vision and Anomalous Trichromatism, by F. W. Edridge-Green.

Studies from the Rockefeller Institute for Medical Research. Vol. XVI. (New York: Published by the Institute. 1913) —The reports from this laboratory are always of interest to those engaged in research in biochemistry and experimental medicine. The present volume contains 29 reprints from the *Journal of Biological Chemistry*, the *Journal of the American Medical Association*, the *Journal of Experimental Zoology*, the *Archives of Internal Medicine*, the *Journal of Experimental Medicine*, the *Journal of Infectious Diseases*, the *Popular Science Monthly*, the *Zentralblatt fur Physiologie*, the *Biochemische Zeitschrift*, the *Berliner Klinische Wochenschrift*, and *Hoppe-Seyler's Zeitschrift fur Physiologische Chemie.* Among the papers having a more immediate relation to practical medicine are Pharyngeal Insufflation: a Preliminary Note on a Simple Method of

Artificial Respiration, by S. J. Meltzer; Malarial Pigment (Hæmatin) as a Factor in the Production of the Malarial Paroxysm, by Wade H. Brown; On the Transmission of Immunity from Mother to Offspring, by L. W. Famulener; A Clinical Study of Acute Poliomyelitis, by Francis W. Peabody, George Draper, and A. R. Dochez; and The Preservation of Tissues and its Application in Surgery, by Alexis Carrel.——Besides the customary official matter contained in the *Proceedings of the American Medico-Psychological Association, 1912* (Published by the Association. 1912. Pp. 511), this volume contains also 27 communications made at the sixty-eighth annual meeting at Atlantic City, New Jersey, in 1912, with the discussions thereon. Besides certain communications of more or less local interest, there are several papers of a more general character, such as those on the Legitimate Use of Psychic Influences in the Treatment of the Insane, by Dr. H. O. Eyman; on Convention, by Dr. Andrew McPhail; on Occupation for the Insane, by Dr. Arthur P. Herring and Dr. C. Floyd Haviland; on the Cortical Representation of Emotion, by Dr. C. K. Mills; on Alzheimer's Disease and on Korsakoff's Psychosis, respectively by Dr. C. Fuller and Dr. H. I. Klopp and Dr. W. C. Sandy; and on the Exciting Causes in Psychiatry, by Dr. A. J. Rosanoff and others.

Eugenics is represented by the Proceedings of two Congresses. The first International Eugenics Congress, which met in London from July 25th to 30th, 1912, under the presidency of Major Leonard Darwin, was reported briefly in THE LANCET of August 3rd, 1912. The papers to be read were published in volume form under the title, *Problems in Eugenics*, before the Congress as far as practicable. A supplementary volume (London: Eugenics Educational Society. 1913. Pp. 189. Price 3*s.* 6*d.* net) now before us contains those papers not received in time for publication in the first volume.—In *Comptes Rendus et Rapports de la IVme Conférence Internationale de Génétique, Paris, 1911* (edited par Ph. de VILMORIN, Secrétaire de la Conférence. Paris: Masson et Cie. 1913. Pp. 571. Price 25 francs), are contained *in extenso* the 58 communications on various subjects connected with genetics made to the Fourth International Congress of Genetics which assembled in Paris in September, 1911. The communications are published either in French or English, with a *résumé* in the alternative language. The volume contains many admirable photogravures and portraits and ten coloured plates. Though somewhat tardy in appearance, it will appeal to those especially interested in the study of genetics.

To all who are interested in our various charities, their organisation and methods of procedure, the *Annual Charities Register and Digest*, by C S. LOCH, secretary to the council of the Charity Organisation Society (London: Longmans, Green, and Co. 1913. Pp. 376. Price 5*s.* net), will be found indispensable It is a classified list of the various institutions ministering to the needs of the poor, and contains a copious index, making reference easy to all charitable institutions in or available for the metropolis. A digest of information respecting legal and voluntary means for the prevention and relief of distress and the improvement of the condition of the needy is added. A review of the year and practical papers written by competent persons on various phases of charitable work are also included ——One of the best and the cheapest, as it is also the oldest, guides to the charities of London is *Low's Handbook* (London: Charles H. Sell. 1913. Pp. 250. Price 1*s.*), in which the charities are arranged alphabetically in paragraphs giving objects, date of formation, office, income, expenditure, list of officers, and so forth, while the preface this year deals with homes for working boys.

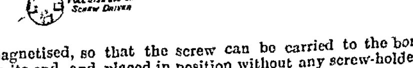
JOURNALS.

Quarterly Journal of Experimental Physiology. Editors: E. A. SCHÄFER, F. GOTCH, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. Vol. VI., No. 3, July, 1913. London: Charles Griffin and Co., Limited. Pp. 209–310. Price 7*s.* 6*d.*—This number is taken up entirely by two papers on allied subjects.—T. Graham Brown presents a continuation of his Studies in the Physiology of the Nervous System and we have the thirteenth communication entitled, "The Compounding of Stimuli in Temporal Succession." The author has shown more fully the changes which ensue in the spinal centres after their disturbance by a reflex stimulus in spinal preparations—normal and "de-afferented," and in decerebrate preparations. The paper extends to 40 pages, is highly technical, and is admirably illustrated. The author's "conclusions" occupy nearly eight pages and the "summary" nearly ten.—Professor Sherrington contributes an admirable experimental and philosophical paper on Reflex Inhibition as a Factor in the Coördination of Movements and Postures, which is illustrated by 22 figures in the text. One of these is a very good drawing of the muscles of the hind limb of a cat, showing the muscles as observed by experimental analysis to be engaged in contracting in the flexion phase and in the extension phase of the reflex step in this animal. It is shown that restraint by inhibition is as fully a reaction to a stimulus as is excitatory response itself. The subjects investigated and discussed are inhibition in relation to autonomic and to skeletal muscle, nature of reflex inhibition, inhibition as a factor in the reflex figure and in reflex response, double reciprocal innervation, de-afferentation of the muscle and reflex inhibition, fatigue and reversal of reciprocal innervation, and the motor cortex and inhibition. The concluding remarks, which extend to nearly two pages, are specially worthy of perusal.

New Inventions.

A NEW SCREW AND SCREW-DRIVER FOR USE IN THE OPERATIVE TREATMENT OF FRACTURES.

THE screw-driver as shown in the illustration has projecting from its end prongs, four in number, which fit into corresponding notches at the margin of the head of the screw. A very secure "bite" is thus obtained, the screw-driver having no tendency to slip off the head of the screw, as so often happens with the ordinary form in common use. It is also more easy to drive the screw straightly home, there being no tendency to deviation. The screw-driver is magnetised, so that the screw can be carried to the bone on its end, and placed in position without any screw-holder. Nothing, therefore, should touch the screw after it has once been put in place on the end of the driver. The screw can be driven in flush with a Lane's plate, as the end of the driver is the exact size of the head of the screw. The advantages over the ordinary screw-driver and screw are the much more secure [illegible] magnetisation. The [illegible] and Hanburys, Limited.



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THE LANCET.

LONDON: SATURDAY, JULY 26, 1913.

The Administration of Medical Benefits by the Approved Societies.

IN a leading article in THE LANCET last week we dealt with the statement of the President of the National Conference of Friendly Societies who holds that the methods of administering medical benefit under the National Insurance Act have favoured the growth of malingering. We then pointed out that if Mr. WARREN'S desire to transfer the administration of medical benefit from Local Insurance Committees to the Approved Societies should be realised one of the best features of the National Insurance Act would cease to exist. We did so not without knowledge that for political reasons this very feature might be threatened at any moment, but those who support such an alteration in the existing Act will be well advised to consider their action. A very large section of the medical profession at the first reading of the National Insurance Bill were strongly opposed to the measure, and not a few of those have remained opposed to it since the Bill became an Act. The antagonism of these latter is perfectly justified. They considered, and still consider, for reasons which cannot be called other than logical, that to compel a large half of the medical profession to undertake contract practice whether they liked it or no was a tyrannous deed. They have remained irreconcilable despite the evidence of good work which is being done under the Act on all sides, and it seems quite possible that they may find their numbers vastly swollen. Another section of the medical profession, not so large, were able more or less to approve of the Bill either as it appeared or as it was finally shaped, and declared themselves from the first willing to work the Act. A third section having withdrawn their resistance at the last moment have been working the Act with more or less reluctance and with varying fortune. Some are openly satisfied with the pecuniary results, and some are not so satisfied, but the whole of this intermediate group have regarded the Act, since they went on the panels, as a piece of legislation under whose provisions they must loyally discharge their duties; they have relied for necessary remedies upon producing, in accordance with their experience, arguments for amendment in various directions.

Such has been and is the attitude of the medical profession toward the National Insurance Act, and of all the inducements towards a modified reconciliation with the upheaval of professional practice the most potent was the fact that under the Act medical benefits were administered by Local Insurance Committees and not by the Approved Societies. To some extent this made it certain that the authority from whom medical men received their contracts for professional work, and to whom they were responsible for the way in which they discharged that work, was one upon which public bodies and members of their own profession were represented. We say "to some extent," for it is well known that the Local Insurance Committees were considered by many medical men to comprise too small a medical representation, so that under their authority the risk of medical men being under the jurisdiction of laymen was not removed, while the institution of Local Medical Committees hardly modified that risk, because the function of these latter Committees is advisory only. No one thought the Local Insurance Committees faultless bodies, but at any rate the old tyranny of the clubs was abolished by their institution, while the principle of free choice of doctor was secured. It had been easy in recent times for a club or medical aid association, acting through possibly ignorant laymen, to discharge the medical officer who was their servant, whether the members of the club or association approved or not, and to impose upon those members another medical man, also whether the members approved or not. The occurrence of these scandalous things—not, be it remembered, theoretical possibilities, but things that have happened over and over again—was obviated when the National Insurance Act freed the practitioners on the panel from the direct authority of Approved Societies. In a measure which has been imposed upon the medical profession without consultation with them, which owes its success to medical work, and which threatens to some extent both medical charities and the standard of scientific education, one thing appealed to the professional sentiments of us all—at any rate, the Battle of the Clubs was over, and medical men could no longer be hired, discharged, or disciplined by Medical Aid Associations.

It has come to us with somewhat of a shock, therefore, to learn that an amendment has been set down by Mr. GODFREY LOCKER-LAMPSON, in Committee of the Bill to amend the National Insurance Act, which proposes to restore to Approved Societies the administration of medical benefits. Mr. LOCKER-LAMPSON'S amendment is in the following terms:—

> Where in any town or district an approved society proves to the satisfaction of the Commissioners that it can provide adequate medical benefit for its members, and that it has made arrangements with one or more resident local medical practitioners to that end, it shall be at liberty to administer such benefit, and the provisions of the principal Act shall be varied accordingly, but so however that any member of such society shall be at liberty to take medical benefit as provided by the principal Act.

The insertion of any such provision into the amending Bill brought forward by Mr. LLOYD GEORGE at the end of June will restart the miserable and luckless quarrel between the medical profession and the Government, and perhaps this is Mr. GODFREY LOCKER-LAMPSON'S idea. At the bare mention of such an alteration the whole struggle of the medical profession against the National Insurance Act bids fair to be revived. The medical men see that one of the great redeeming features of the Act, as far as the medical profession is concerned, will be removed if Mr. LOCKER-LAMPSON'S amendment should succeed, and it is possible in the present condition of political parties that the retrograde proposal may succeed.

There was a time when on both sides of the House of Commons the feeling was unanimous that the medical profession should be free from dictation by lay bodies, and that insured persons should have the right to choose their medical advisers. We are no longer certain what friends we have as a profession, but there is not a medical man who cannot see that the claims of political expediency will outweigh with Members of Parliament those of the prevention of disease or the advancement of learning. At the annual meeting of the Representative Body of the British Medical Association at Brighton on Saturday, July 19th, the following resolution was adopted unanimously:—

> That this meeting strongly protests against the amendment to the National Insurance Act, proposed by Mr. G. LOCKER-LAMPSON, having for its object the transference of the administration of medical benefit to Approved Societies, which would be a distinct breach of faith between Parliament and the medical profession, and will, in the interests of the public and the profession, offer the most strenuous opposition to this or any other attempt of the kind.

We do not consider that the resolution is too strongly worded. We can quite understand that in some cases the Approved Societies, by offering better terms to their old medical officers than they formerly cared to do, would secure an excellent medical service; but there is no guarantee that all medical clubs, having got matters into their own hands, would behave with this sense or justice. To place the medical profession now at the mercy of the Approved Societies, having secured the assistance of the profession upon the panels by leaving the authority in the hands of the Local Insurance Committees, would be nothing short of a breach of faith.

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The British Medical Association: the Address in Medicine.

THE conception of internal secretion is one which has been fruitful, not only in regard to physiology, but also in enriching therapeutics with definite substances of great activity and of notable value. It has also served to explain the genesis of certain obscure diseases, and has done perhaps more than anything to demonstrate the importance of the biochemical interrelations of the various organs and tissues of complex organisms. Professor GEORGE R. MURRAY in selecting Some Aspects of Internal Secretion in Disease as the subject of his Address in Medicine before the Eighty-first Annual Meeting of the British Medical Association, has succeeded in giving a thoughtful and practical *résumé* of the present state of our knowledge in regard to this question. His remarks are of the greater interest from the fact that he was one of the earlier workers in this field of research, and the critical and practical character of his address shows clearly that he has kept well in touch with subsequent work upon the subject, and has weighed it in the balance of experience. His warning at the outset, that we are apt to fail to distinguish between what has been ascertained and what is still largely theoretical, is a timely one and deserves emphasis. The large amount of experimental and pathological work upon the subject of the internal secretions or hormones carried out in recent years has formed the basis upon which an even loftier superstructure of speculation has been erected. In not a few instances hypotheses of great complexity masquerade as established fact. Professor MURRAY points out that this is most unfortunate, since it serves to hinder rather than to accelerate the application of our knowledge to the development of reliable methods of treatment. In his review of the present state of the subject he carefully distinguished between the practical and the theoretical, and it is this eclectic note which gives a special value to his remarks.

In view of Professor MURRAY'S special interest in diseases of the thyroid body, it is not surprising that a considerable part of his address was devoted to the gland and the disturbances of its functions in disease, together with their treatment. In commenting upon thyroidal insufficiency, he bids us note that whereas typical cases of established myxœdema are strikingly characteristic, the slight and early forms of the disease may easily be overlooked. In middle-aged women who complain of lassitude, chilliness, and other subjective sensations, associated with slight dryness of the skin, some loss of hair, and a little thickening of the subcutaneous tissues, or other signs of slight thyroidal insufficiency, it is necessary to remember that myxœdema may be the explanation of the symptoms, though every one of them, taken separately, is so common and so trivial. He summarises briefly the effects of the partial or complete failure of thyroidal hormones as demonstrated by the effects of disease or removal of the gland in man and animals, and includes a short historical review of the application of the knowledge so obtained to the treatment of thyroidal insufficiency, making a very modest reference to his own important share in this notable therapeutic advance. In this connexion it is interesting to learn that the first case of myxœdema which Professor MURRAY treated is still alive and well, having been kept in health 22 years by this treatment, during which time she has taken liquid thyroid extract to an amount which in all is less than one gallon. The use of thyroid extract in various conditions in which there is no definite evidence of any deficiency in the thyroidal hormones makes another interesting section of the address, and the effects of hyperactivity of the thyroid gland, more especially as evidenced in the various degrees of exophthalmic goitre, are of the real importance which he attributes to them. Professor MURRAY points out some interesting associations of this disease, notably its relation to sugar tolerance and diabetes and to tuberculosis. He has found that pulmonary tuberculosis occurs but rarely in uncomplicated cases of exophthalmic goitre, and that when it does occur it is usually limited in extent and activity. This apparent resistance to infection he suggests is probably due to the increased activity of the metabolism of the tissues rather than to any direct action of the thyroid secretion. In commenting upon the variability of the symptoms of Graves's disease, the occurrence of general and local crises was described by Professor MURRAY. In the general crises almost all the symptoms are aggravated, and the attacks may be alarming and dangerous. The explanation offered is that they are due to a sudden increase in the activity of the thyroid. The local crises may be described as cardiac, cutaneous, bronchial, gastric, or intestinal, according to the organ or system mainly affected. To account for these local manifestations it is suggested that the thyroid secretion may contain different hormones capable of activating different organs. It is evident that here we are on less secure ground and that further observations are necessary. Professor Murray in this connexion indicates that we are as yet ignorant of the manner in which the thyroid hormones produce the characteristic tachycardia of Graves's disease. In reviewing the treatment of the condition of hyperthyroidism he speaks favourably of the application of suitable doses of X rays to the gland, and finds that the cutaneous and bronchial crises are generally controlled by belladonna in full doses and the gastric and intestinal crises by opium.

The remainder of this interesting address is devoted to a brief examination of the functions of the other ductless glands and of certain other glandular structures believed to produce hormones, such as the pancreas and the generative glands. The remarkable interrelationships of these glands are passed in review, and their important activities in connexion with growth and sexual development outlined. Professor Murray concludes on a note of hopefulness in regard to the future of the subject of internal secretion and its practical applications, which we are glad to notice and to endorse. He thinks it probable that as our knowledge increases some less definite forms of ill-health than those at present recognised may be found to be due to variations in the activity of these glands, and that we shall acquire further means of controlling their activities and so find more efficient methods of treatment of some of these conditions than those at present available. With this cautious optimism we are in accord.

The British Medical Association: the Address in Surgery.

The *motif* of the address delivered by Sir Berkeley Moynihan was the recognition of the benefits which surgery has conferred on medicine, alluding here to medicine proper, or therapeutics as distinct from surgical interference. He showed good cause for valuing highly the additions to our knowledge gained by the surgeon in the course of operations. At one time we were dependent for our knowledge of pathological changes almost entirely on the observation of those lesions which could be seen at the time of the necropsy, and therefore pathologists had to endeavour to explain the symptoms of the earlier stages of the disease by the organic changes which could be found after death. Too often the late signs could not be made to explain satisfactorily the early symptoms, a difficulty notably present in the group of manifestations which has been classed together as dyspepsia. For many years these symptoms were regarded as merely functional in origin; they were ascribed to a deficiency or to an excess of the gastric juice, or to a diminution in the activity of the gastric muscular tissue. But our views of dyspepsia have been completely changed. The advent of abdominal surgery has shown that in many instances there is a manifest organic change to which the symptoms must be attributed, for when surgery has remedied the organic condition the symptoms cease. One of the most striking advances has been in cases of pyloric obstruction. The introduction of the operation of gastro-enterostomy has given results amazing in their nature and in the rapidity with which they are obtained. Patients who for years have been unable to take more than the minimum of food, who have been afflicted with distressing vomiting at intervals of only a few days, and who have been brought to the verge of death with weakness and wasting, have in little more than a week or two found that they are able to take any food, and to eat with a relish and an appetite which they have not known for years, and they have rapidly increased in weight. As an instance we may quote a case operated upon by Sir Berkeley Moynihan in which a patient's weight in a few years increased from 51 lb. to over 131 lb.; this, of course, was a remarkable occurrence, but it is not very rare for the weight of a patient to be doubled.

As the number of gastric operations increased, and the records of surgeons became available in many directions for comparison, it appeared that many subjects in whom a diagnosis of gastric ulcer had been confidently made were found, when the abdomen was opened, not to be suffering from any ulceration of the stomach, while gastro-enterostomy relieved them not a whit. In the duodenum also no ulceration could be found; but on wider examination an inflammation of the vermiform appendix was discovered to be present, and Sir Berkeley Moynihan's paradoxical opinion is that the most common site for a "gastric ulcer" is in the right iliac fossa, or that an appendicitis is often the real cause of the symptoms. Not that the stomach is quite healthy, for we know that in all these cases there is a change in the appearance of the gastric mucous membrane; there is a vivid injection, a deep congestion of the pyloric portion of the stomach, and in addition some enlargement of the sub-pyloric group of glands. The evidence is increasing, as more operations are recorded, that chronic inflammation of the appendix may be the precursor of gastric ulcer. Another fact that has been brought out by the investigations of surgeons through the medium of operations is the dependence of malignant disease of the stomach on previous ulceration. Of the patients with gastric carcinoma who come to the surgeon two out of three give a history of dyspepsia of some months' or years' duration, and they state that it is only after a long course of dyspepsia that weight is more rapidly lost, that anæmia develops, and that the appetite fails. This is probably when malignant disease supervenes, the view being borne out by the results observed at the Mayo Clinic.

In the matter of the pancreas, again, we find proof of the service which surgery has rendered to medicine. Little indeed was known of the diseases of this organ until the surgeon investigated the subject. The existence of chronic pancreatitis was unsuspected until it was described by surgeons. Suddenly it was shown by the results of operation that cases which were thought to be examples of cancer of the head of the pancreas will recover completely if the blocking of the bile-duct is relieved by forming an anastomosis between the gall-bladder and the duodenum, or even between the gall-bladder and the stomach. Improvement seems to occur even in the sad cases when cancer is really present, but then, of course, the relief of symptoms is brief in duration In many cases, however, complete recovery follows Many patients, indeed, who have been submitted to operation are now well several years later All of which goes to prove how powerful an assistant surgery has been in the elucidation of many of the problems of medicine which for ages remained unsolved, and we do not doubt that in the future, as in the past, the operative work of the surgeon will render the most valuable aid to therapeutics Sir BERKELEY MOYNIHAN'S address was inspiriting and suggestive, and it should make us very hopeful of the solution by the surgeon of many pathological difficulties

Annotations.

"Ne quid nimis"

THE BACTERIOLOGICAL STANDARDISATION OF DISINFECTANTS

THE Council on Pharmacy and Chemistry of the American Medical Association has presented a report in which is announced the adoption of a method worked out in the Hygienic Laboratory of the United States Public Health Service for the bacteriological testing of disinfectants The method has been public property for some considerable time The details were published in the Hygienic Laboratory *Bulletin*, No 82, of April, 1912, but the general principles of the process were published in January, 1911, in the *Journal of Infectious Diseases* by two members of the United States Public Health and Marine Hospital Service, *Dr John F Anderson and Dr Thomas B McClintic* This publication was dealt with by us in an annotation in THE LANCET of Jan 7th, 1911 The conclusions of the authors were of special interest to us in view of the work *of our Commission upon the subject* "THE LANCET method," observed these investigators, "on the whole, seems to be a distinct advance over the Rideal Walker, but nevertheless it appears to have certain rather serious faults However, notwithstanding the objections noted, we believe THE LANCET method to be a distinct improvement over any other that has been proposed up to this time, and that with it constant results can be obtained by different workers After doing considerable work with both the Rideal Walker and THE LANCET methods, we came to the conclusion that, on account of the great variation in results that may be obtained with the former method, it was not a method to advise for the examination of disinfectants While consistent results can be obtained with THE LANCET method, we believe, on account of the objections we have stated in the discussion of that method, that this method can be so modified as to greatly increase its usefulness With this object in view, we have taken up in detail each step and factor concerned in the successful carrying out of the test, and propose the following method, to be described later, for the determination of the germicidal efficiency of disinfectants as compared with pure phenol In proposing this method we desire to make full acknowledgment of our use of the Rideal Walker and THE LANCET methods, especially the latter, as a basis for our work " The method was subsequently published in the Hygienic Laboratory *Bulletin* issued by the Treasury Department, Public Health and Marine Hospital Service of the United States, in which the authors repeat their acknowledgment of the help given to them by the work of our Commissioners upon the subject In this report they give the results of the examination of a number of commercial disinfectants tested with and without organic matter by their modification of THE LANCET method We now learn that this method is known in the United States as the Hygienic Laboratory coefficient It has some of the features of the Rideal Walker method as well as THE LANCET method It has been quite generally adopted in the United States and is now used by the Federal Government in connexion with the purchase of disinfectants Further, it has also been officially adopted by some State boards of health By a resolution passed at the annual conference of *State Boards of Health* with the Public Health Service, held in Washington, June 1st, 1912, it was decided "that the United *States Public Health Service Hygienic* Laboratory method for the determination of the phenol coefficient of disinfectants be recommended to the several State boards of health as the standard method, that all regulations regarding disinfectants be based on this standard, and that the phenol coefficient be required to be stated on *the label of each package containing such disinfectant* " The Council on Pharmacy and Chemistry of the American Medical Association, in its report published in the *Journal of the American Medical Association* of April 26th, 1913, concludes that "it is evident from the above statements that the method is coming into very general use in the United States, and probably will supplant the other methods for the standardisation of disinfectants in this country " It has further been decided to recommend to the council the adoption of the Hygienic Laboratory phenol coefficient It is a source of satisfaction to us to learn of our work upon the subject receiving official recognition such as this Our inquiry, which was necessarily an arduous one, had its origin in an attempt to place the standardisation of disinfectants on a satisfactory basis unencumbered by commercial considerations We did not expect to reach finality upon the question, but it is now obvious that our work was sufficiently suggestive to lead the way to the adoption of an official standard method The Rideal Walker was undoubtedly the pioneer method in this direction, but experience has shown that this was capable of considerable improvements in regard to securing regular and more consistent results at the hands of different workers While on this subject we may note that in the May number of the *Analyst* Dr S Rideal is reported to have said at a meeting of the *Society* of Public Analysts, at which the question of the *bacterial testing of disinfectants* was discussed, that THE LANCET test "had not been heard of any more," a transparently incorrect observation in view of these recent events in the United States to which we have referred

THE IMPERIAL CANCER RESEARCH FUND

THE eleventh annual meeting of the Imperial Cancer Research Fund was held on July 17th at the Royal College of Surgeons of England, the Duke of Bedford, the President, being in the chair The adoption of the annual report for 1912 13 was moved by Sir William Church, and seconded by Sir John McFadyean, and was duly carried Sir W Watson Cheyne was appointed honorary treasurer in place of Sir Henry Morris, who was unanimously elected a *vice president* on the proposal of the president The report of the executive committee referred, among other things, to the generous cooperation with other scientific bodies at home and abroad, whereby material for investigation is both given and received, and to the advantages accruing from interchange of views with investigators in America and Europe, *as well as from the opportunities* afforded to Dr E F Bashford, the general superintendent of observing at first hand the methods used and the experiments being made in various foreign laboratories

The report of the honorary treasurer disclosed that the past year had been financially satisfactory, the general fund being substantially enriched by a legacy from the late Mr. James Wilcock, who had already given £1000 during his life, and the endowment fund by a munificent donation of £10,000 from Mr. Edwin Tate, of which, at the donor's request, the capital is to remain intact, only the interest being used for research, thus providing a perpetual addition to the available income for research. Legacies of £500 and £50 respectively have also been received from the executors of the late Mr. Stewart Dow and the late Mr. Andrew MacMahon. The report of the general superintendent and director of the laboratories deals at great length with the subject of experimental investigation; also with statistical investigations, the relative frequency of cancer, the notification of cancer, and with claims for cancer "cures." Of these there have been 12 brought forward during the past year. Wherever any tangible basis was adduced the claims have been investigated, but in no case has any justification for the claim been discovered. Two of the cures were plasters, both of undivulged composition; a third, so far as could be ascertained, consisted in the injection of a solution of potassium permanganate. Others were "brandy and egg," a secret "germicide," liquid paraffin, and an alleged radio-active mineral water. All the cases examined confirm anew the fact that in such cases of reported cure either there is no satisfactory evidence that the tumour was cancer, or if the diagnosis of cancer has been established, no cure has in fact been effected or the patient is already dead.

PHYSICIAN AND POET.

VERSE, as a medium of medical precept and practice, is familiar enough to the student of Latin. There are, for instance, the hexameters of Q. Serenus Sammonicus; those of the Schola Salernitana, and of Gerolamo Fracastoro. But verse does not make the poet, any more than the cowl makes the monk, and, as employed by the above-named authorities, it was preferred to prose as the more attractive vehicle, if not, indeed, as a "memoria technica." It is with the Renaissance that we find the physician cultivating the field of poetry proper, whether in the epic or the didactic, whether in the dramatic or the lyric vein. Inspired by classical, mainly Roman, models, whose language—the sole medium of communication in the world of literature and science—was familiar to him from his youth, the physician who possessed the vision and the faculty of the poet would, like Amaltheus, compose epigrams not unworthy of Martial, or, like Arthur Johnston, pour forth elegies rivalling those of Ovid, both authors representing a school whose traditions were perpetuated by Henry Vaughan, or Archibald Pitcairne, or Sir Henry Halford, or Francis Adams. But with the wane of Latin as the medium of culture and the rise and development of the modern languages in its stead, the physician, "touched to poetic issues," has drawn from other sources of inspiration, and, under freer and fresher conditions, has courted the Muse in the vernacular, till, abandoning the humanistic tradition, Henry Vaughan, for example, becomes a forerunner of Wordsworth, while Goldsmith develops as a less artificial Pope, and Leyden as a Border minstrel of the school of Scott. Later in the last century we find Lovell Beddoes reviving in his dramas the Elizabethan colour, Moir recalling the masterpiece of Filicaja in his noble sonnet on the St. Bernard and its Hospice; Wendell Holmes striking a deeper, subtler note than Longfellow. Later still, we have Robert Bridges, as physician and poet, innovating boldly and happily on preceding singers, lay as well as professional, taking new departures in metrical form, achieving effects at once original and pleasing in stress and cadence, and producing works, idyllic or dramatic, lyric or elegiac, which have slowly but surely won an audience profoundly appreciative, if not enthusiastic. It is something in these days, when the levelling roller of utilitarianism has done so much to suppress individuality, that even a high-priest of that cult, John Stuart Mill, came to regret the result of his own crusade and, *faute de mieux*, to put a premium on "eccentricity" if only as a foil to "sameness"—it is something, we say, to find the purer, more artistic form of literature renovated and reinforced by a votary whose discipline, intellectual and moral, academic and professional, has peculiarly fitted him for the task. For the discipline of medicine has no doubt maintained Robert Bridges in touch with what is most vital in the bequest of antiquity and with what is most spiritually contagious in that calling which appeals so directly to the sympathies. The physician—"Naturae minister et interpres"—whose daily walk keeps time with

> the still, sad music of humanity,

responds to appeals which are the very breath of life to the poet's mind and soul, and when his response takes expression in language and in metrical form at once pure, harmonious, and artistically inspired, we have a combination of coefficients as rich as it is rare.

THE CHEMICAL STERILISATION OF DRINKING WATER FOR MILITARY PURPOSES.

IT is a common experience that sterilising methods depending upon boiling and filtration often break down under the very trying conditions of a campaign. In an interesting paper we have received from Captain V. B. Nesfield, I.M.S., who writes from Bijnor in the United Provinces of India, it is stated that boiling and filtration do not prevent epidemics of water-borne disease amongst troops under war conditions because these methods are unpractical. He describes, however, a chemical method which he says is practical, efficient, economical, and rapid, judging from the experience he has gained during manœuvres carried out in peace time and in war. He sterilises the water by the addition of hypochlorite of lime, half a grain of which in five minutes is sufficient for a gallon of well, river, or pond water. He removes the excess of chlorinated lime by the addition of sodium thiosulphate, but observes that it is difficult to get rid completely of the taste of the hypochlorite, but the addition of a very small quantity of potassium iodide accomplishes this object. Altogether he employs for a gallon of water half a grain of chlorinated lime, which is then neutralised with half a grain of thiosulphate combined with one-tenth grain of potassium iodide. The hypochlorite is preserved in sealed tubes, each containing 25 grains, while a tabloid consisting of 25 grains of hyposulphite of soda and 5 grains of potassium iodide is used for neutralising purposes. The sterility of the water is ascertained by using "culture pills" consisting of sodium taurocholate, peptone, lactose, and sodium carbonate. To complete the method for military purposes a collapsible canvas tank is necessary. For most purposes the quantities of chemicals given above are sufficient, even although there may be some absorption of chlorine by organic matter. When the water is muddy and contaminated it should be strained through blankets and treated with two grains of hypochlorite per gallon and allowed to stand one hour before dechlorinating. An alternate process consists in using a mixture of potassium iodate and iodide with tartaric acid, free iodine being generated when these substances are dissolved in water. The excess of iodine is removed by the addition of thiosulphate with a little carbonate of soda. The actual practicability of the process in the field was demonstrated by Captain Nesfield in connexion with the following events: (1) The Tibet Expedition; (2) the Cameronians, 1905; (3) the Barchacha Artillery Campaign; (4) the Agra concentration of troops for the Amir of Afghanistan; (5) famine relief operations in the United Provinces 1906-07, when over a million gallons of water were sterilised by this process; and (6) the Mohmund Expedition. Captain Nesfield has appealed to the sanitary department of the army to give the process a fair trial. His favourable experiences in regard to the simplicity, efficiency, but above all, practicability of the process seem to us to offer very good reasons why his appeal should be granted.

AORTIC ANEURYSM RUPTURING INTO THE PULMONARY ARTERY.

A RARE result of aortic aneurysm is rupture into one of the great veins—superior cava, inferior cava, or pulmonary artery. In the *Johns Hopkins Hospital Bulletin* for July Dr. H. N. Stevenson has reported three cases of rupture into the pulmonary artery—the only ones observed amongst 3900 necropsies at the hospital. In the first case a coloured man was admitted on Sept. 19th, 1912, complaining of dyspnœa. He gave a history of several attacks of gonorrhœa, but not of syphilis. His illness began about Christmas, 1911, with sudden dyspnœa, which had become worse. There were also præcordial pain and swelling of the legs and abdomen. Lately he had suffered from severe fits of coughing, with hæmoptysis and nausea. The veins in the neck were greatly dilated, and a whirling murmur was heard over the subclavian arteries. There was no definite tracheal tug, but a transmitted pulsation was felt over the trachea. The percussion note was dull and breath sounds were absent over the right base and above the spine of the left scapula. The point of maximum intensity of the heart's impulse was not very definitely localised in the fifth interspace in the mammary line. There was a diffuse heave of the whole sternum. In the third left interspace was a localised pulsation and friction fremitus was felt. Cardiac dulness began at the second rib and extended 14½ cm. to the left in the fifth interspace and 5½ cm. to the right in the fourth. At the apex a systolic murmur accompanied the first sound. At the base a diastolic murmur was heard. The pulmonary second sound was accentuated. In the area where the fremitus was palpable a machinery-like whirl, made up of a rough systolic murmur, an accentuated second sound, and a blowing sound running through both systole and diastole, was heard. The radial pulses were equal but collapsing. There was shifting dulness in the flanks. On the second day after admission a little blood-streaked sputum was expectorated, and was followed by a gush of pure blood and death within a few minutes. The necropsy showed syphilitic mesaortitis, aneurysm of the transverse arch of the aorta, two communications with the pulmonary artery, of which the larger was 1 cm. in diameter, hypertrophy of the right ventricle, passive congestion of the viscera, ascites, and rupture of the aneurysm into the left lower bronchus. In the second case a white man, aged 26 years, was admitted on Jan. 10th, 1910, complaining of pulsation of the heart. There was no history of venereal disease, but one of frequent exposure. He had been previously admitted, in December, 1908, for aortic aneurysm, which was wired by Dr. J. M. T. Finney. He improved and was discharged in June. Four weeks before his second admission he became puffy under the eyes and he suffered from attacks of vomiting and dyspnœa. When examined he was sitting up in bed by preference, resting on his arms. The lips and ears were cyanotic and the mucous membranes were pale. The vessels of the neck were full, especially on the right side. In the carotids was a systolic thrill, and on auscultation a continuous hum with systolic accentuation was heard. The pulse was collapsing, the left being smaller than the right. A definite tracheal tug was felt. There was a diffuse systolic heave of the chest with a pulsating prominence above the left præcordium. In the first four interspaces was an expansile impulse, a continuous thrill with systolic accentuation was felt, and a continuous rough murmur with systolic accentuation was heard. There were dulness in the flanks and œdema of the extremities. He grew weaker and died on Jan. 11th. The necropsy showed an aneurysm of the ascending arch of the aorta containing recent clot collected round a silver wire and communicating with the pulmonary artery by a hole 6 mm. in diameter. In the third case a coloured man, aged 45 years, was admitted on Jan. 5th, 1892, complaining of dyspnœa and weakness of the legs. His illness commenced in October, 1891, with cold and cough. Four weeks before admission dyspnœa with occasional attacks of nausea and vomiting began. He could not sleep lying down. The legs had been swollen for a few days. Chest resonance was good except for dulness at the right base. Cardiac dulness began at the upper border of the third rib and extended to the right border of the sternum. The cardiac impulse was 2 cm. outside the nipple line. The first sound was faint; the second was replaced by a dull prolonged murmur which became louder on passing upwards to the third rib. He grew weaker and died on Jan. 11th. The necropsy showed an aneurysm of the aortic arch communicating with the pulmonary artery by an opening half a millimetre in diameter. In the first two cases the opening into the pulmonary artery was large; in the third it was tiny. In the two former there were enlargement of the heart to the right and a collapsing pulse; in the latter these were absent. Moreover, there were a continuous thrill and murmur in the carotid and subclavian arteries in the former, while in the latter there were a single murmur and thrill.

THE BRITISH RED CROSS IN THE BALKAN WAR.

MEDICAL reports from the seat of war, wherever it may be, present a striking family likeness. The mortality among the earlier cases to reach the base hospitals is always considerably greater than that at a later period; the prevalence of epidemic disease is apparently inevitable; and the questions of transport of the wounded, of nursing, and of amateur help always present themselves in somewhat similar form. Mr. C. Max Page and Mr. S. V. Appleyard conclude in this issue of THE LANCET an account of their medical and surgical experience in the Balkan war, and as that war may now be resumed in serious form at any moment their story is worth close attention. It may be possible in future developments to guard against some of the troubles in organisation that occurred a few months ago. They state that the mortality of the first 130 cases dealt with at the British Red Cross base hospital in the Musée des Beaux Arts, Stamboul, corresponding to the early stages of the war, was 41·6 per cent. This was partly attributable to the defective condition of the transport, whereby many days of exposure and starvation elapsed between the incidence of the wound and arrival at the hospital. In the later period, when the men were better fed and in better condition generally, and the time of transport from the front had been reduced to from one to four days, this heavy mortality was reduced to 4 per cent. out of 448 cases. As to epidemic disease, the tale of dysentery, cholera, enteric fever, and typhus fever kept up the tradition of war, but everything seems to have been done to make the best of local conditions, and to fight disease with modern weapons and determination.

The numerous orderlies proved, it seems, a great stumbling block, native labour being more satisfactory for the ward work. This remark is in line with the observations made by Sir Alexander Ogston before the Royal Commission on the Boer war. The dressers, also, were too numerous. The authors suggest that they should rank rather as assistant surgeons with special duties. A point worthy of notice is the replacing of shallow cesspool latrines by bench latrines with old kerosene tins as reservoirs. In this connexion mention may be made of a comment by THE LANCET'S Special Correspondent[1] in the Russo-Japanese war, who remarked in reference to the Japanese latrines, which appear to have resembled the native latrines in Constantinople, that it will some day be recognised that it is better to substitute half a kerosene tin for the fixed open pan and to change it for a clean one every day. Carbolic acid is bulky in relation to its disinfecting power, and the authors suggest the substitution of some antiseptic of greater disinfecting power in proportion to its bulk—e.g., lysol or some kindred substance. The authors' professional experiences bear out those of other observers in recent wars. To the temperate habits of the Moslem are ascribed the absence of excitement, of respiratory obstruction, and of post-operative vomiting in regard to anæsthesia. The wounds from the modern small-bore rifle bullets are usually benign and aseptic, while shrapnel wounds usually suppurate. It will be remembered that during the Russo-Japanese war the rule was laid down with regard to bullet wounds, "if in doubt do not operate," and that the result was satisfactory, but that shrapnel wounds, owing to their greater liability to suppurate, demanded operation more frequently. In gunshot wounds of the skull, however, the authors' experience leads them to counsel operation as soon as proper conditions are available. While their experience in regard to abdominal wounds confirms the general trend of experience towards conservatism, their figures do not bear out the conclusions of many previous observers as to the comparative benignity of wounds of the thorax.

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THE Public Health Bulletin No. 58 of the United States Public Health Service deals with "Open-Air Schools for the Prevention and Cure of Tuberculosis among Children," and is a document which should prove of interest and value to all concerned with preventive or curative medical work among the child population. The report is by Dr. B. S. Warren, passed assistant surgeon, United States Public Health Service, and is based on experience gained in St. Louis, Mo., and on reports of open-air schools in other parts of the United States. He states that the two main points to be considered in selecting a site for a school are accessibility and hygienic environment, and mentions the flat top of a large city building as a possibility, but thinks it better to sacrifice accessibility if one of the points must be given up. The type of building recommended is that open on all sides with canvas drop curtains for protection against severe cold winds. A school suitable for 30 children is described, and detail plans are given with photographs of a school erected from these plans. He advises separate schools for pretubercular or "closed cases" with no tubercle bacilli in sputum or other discharges, and for the "open cases" with tubercle bacilli present. One of the photographs shows the open-air school being carried on with snow on the ground, and the children are provided with Eskimo suits, looking very warm and cosy. A curious point which has been noted in England is commented on by Dr. Warren when he says: "Habits of life of the child should not be suddenly changed. Many children must be trained before they can eat enough of strange dishes to maintain their bodyweight and growth, and if forced at once into a recognised standard would lose in weight." Two record cards are suggested in the bulletin, one dealing with economic and family conditions, the second with the child individually, and charts of increase of weight and of gain in hæmoglobin are given. The results recorded in America are "uniformly good"; of 875 children reported on only 70 showed a loss in weight, and most of these were cases of active tuberculosis admitted too late to expect success. Attendance is good and percentage of absentees much less than in the public schools, coupled with which the children made remarkable progress in school. We are very glad to see that this excellent bulletin concludes by advocating open-air schools for all children, and prophesies wonderful results for normal children in which the application of the plan has not initial difficulties to contend with.

BERI-BERI IN SIAM.

THE Siamese, like other nations in the Far East in whose dietary white rice bulks largely, have suffered considerably of late years from beri-beri. In Bangkok, the capital, with a population of half a million, there have been 1278 deaths ascribed to the disease during the 2½ years ended March 31st, 1912. As the suggestion had also been made that possibly Siam rice possessed special beri-beri producing qualities, the Ministry of Local Government decided to institute an official inquiry into the matter, and Dr. H. Campbell Highet, principal medical officer of health of Bangkok, was instructed to conduct the investigations, assisted by members of his scientific staff. His report has now been published, and it confirms the conclusions generally arrived at by Fraser and Stanton, as well as by other experts in the Malay Peninsula and elsewhere, and which we have from time to time reported in the columns of THE LANCET. Dr. Highet and his colleagues by their experiments demonstrated that Siam rice, when not over-milled, compares very favourably with rice from other places, such as Rangoon and Saigon, and that a beri-beri preventing rice can be prepared from Siam "padi" either by hand or steam mill and without the padi being previously parboiled. The phosphorus content of a rice should not be less than 4 per cent., and this should be taken as the indicator of the safety or otherwise of the rice. In view of the overwhelming evidence incriminating over-milled rice in connexion with beri-beri, some reformers have strongly urged that the law should interfere to prohibit the sale of this rice which has by milling been deprived of certain elements necessary for normal nutrition, but Dr. Highet expresses the opinion that, for the present at least, legislation in that direction in Siam is not advisable, more especially as it is not yet admitted what the actual substance is, the removal of which from the exterior of the rice grain by the process of milling leads to the development of beri-beri in the consumers of such rice. Meanwhile, the use of white, over-milled rice has been prohibited in the Siamese navy and in all the Government institutions, including asylums and prisons, as well as among the provincial gendarmery, a force which comprises about 9000 men. The result of this prohibition has been the almost complete disappearance of beri-beri from these various bodies; and were the Siamese army to follow suit the disease would, Dr. Highet says, be practically extinguished from the whole of the public service of the country. As regards the general population which has come to prefer the white rice and to reject any that is not well milled and polished, it is hoped that in time the force of education of the people in matters of diet and as to the danger arising from the consumption of rice deprived of some of its essential constituents will lead to an altered attitude and to the complete disappearance ultimately of the malady from Siam.

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[1] THE LANCET, Jan. 28th, 1905, p. 256.

BRITISH PHARMACEUTICAL CONFERENCE.

THE jubilee of the British Pharmaceutical Conference was fittingly celebrated at the annual meeting held in London this week. The suggestion, or rather the demand, made by the President, in his address, that in the revision of the British Pharmacopœia pharmacists should be officially recognised is not new, and is certainly deserving of serious consideration. At present the Pharmacopœia Committee of the General Medical Council is assisted voluntarily, and, let it be added, ably, by a committee of pharmacists, but Mr. J. C. Umney, who is a member of that committee, says he is confident that this is the last occasion upon which pharmacists will aid in the revision of the Pharmacopœia on the present conditions. Briefly, what Mr. Umney proposes is that a British Imperial Pharmacopœia Commission should be set up by Act of Parliament, and that on that commission medicine and pharmacy should alike be represented. It must be acknowledged that without the aid of pharmacists the Pharmacopœia could not be produced satisfactorily, and if they in future refuse their assistance, unless they share the honours of revision equally with the representatives of medicine, the position will be a delicate one. No doubt the difficulty will be solved by the use of common sense. The papers read in the Science Section of the Conference should prove a useful addition to pharmaceutical literature, and such work is in itself a strong support of Mr. Umney's views. In one of the papers some valuable suggestions are made with regard to preparations of ergot of rye. Now that the chief active principles of the drug have been isolated in a state of chemical purity and the mode of action of each worked out in full detail it certainly does seem opportune, as the authors, Mr. F. H. Carr and Mr. H. H. Dale, suggested, to submit to the test of this new knowledge the pharmacopœial requirements for the drug and its preparations. The results recorded of further investigations of thyroid glands will be useful; the author of one of the papers on this subject, Mr. R. G. Guyer, incidentally called attention to the dual standard at present in vogue in prescribing and dispensing thyroid gland preparations. He says that practitioners frequently prescribe, say, 3 grains of thyroid gland in tablet form, and do not define whether they mean moist or dry substance. He therefore suggests that as the Pharmacopœia definitely gives thyroideum siccum pharmacists should always employ that standard when dispensing tablets of their own make, or else should be certain that those they purchase conform to it. The papers certainly showed that there are many workers in the field of pharmaceutical research who are adding to the common stock of knowledge, and whose collaboration must be highly valuable to the physician.

TUBERCULOSIS OF MESENTERIC GLANDS SIMULATING GASTRIC ULCER.

IN the *Boston Medical and Surgical Journal* of March 6th Dr. M. V. Tyrode has reported a curious case in which tuberculosis of mesenteric glands simulated gastric ulcer. The patient was a slight man, aged 25 years, rather pale, and poorly developed. His previous illnesses consisted of children's diseases and a chancre two years before followed by ulceration of the throat. He had suffered from symptoms of indigestion for five or six years, consisting of pain in the epigastric region, going a little to the right side, with heartburn and eructation of sour fluid and belching after meals. Examination showed enlarged glands in the axilla and groin, moderate anæmia, a rather hard, flat abdomen with a resistant mass in the right upper quadrant which was slightly sensitive. The gastric contents after a Ewald test breakfast showed no retention and an excess of hydrochloric acid. It was thought that there was a gastric ulcer and that induration in connexion with it had given rise to the mass in the epigastrium. The patient improved under treatment, but was not cured. Exploratory laparotomy was therefore performed. The stomach and duodenum showed no evidence of ulceration, the gall-bladder contained no stones, and the appendix did not appear diseased, but the entire mesentery was riddled with enlarged glands varying from the size of a pea to that of a walnut. Where the mass had been felt was a particularly large collection. Most of the glands were hard, but some were soft and cheesy. There was no peritonitis and no adhesions or fluid. Before closing the abdomen a gland was removed for microscopic examination. It was found to be tuberculous. Treatment for tuberculosis—open air, forced feeding, and tonics—was adopted. The patient gained 10 lb. in weight and ceased to complain of pain, but was troubled by heartburn for some time. Some years later he was reported to be quite well.

THE ROYAL SOCIETY OF MEDICINE.

IN consequence of the International Congress of Medicine the usual time for closing the house of the Royal Society of Medicine for cleaning and stocktaking will be altered. Instead of the house being closed from August 1st to 31st, it will be closed from August 14th to Sept. 13th, both days inclusive.

MEDICAL AND SURGICAL EXPERIENCE IN THE BALKAN WAR.

BY C. MAX PAGE, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO OUT-PATIENTS TO VICTORIA HOSPITAL FOR CHILDREN; LATE MEDICAL OFFICER TO THE BRITISH RED CROSS SOCIETY IN TURKEY;
AND
S. V. APPLEYARD, M.R.C.S. ENG., L.R.C.P. LOND.,
LATE MEDICAL OFFICER TO THE BRITISH RED CROSS SOCIETY IN TURKEY.

(*Concluded from p. 164.*)

SURGICAL CONSIDERATIONS.

IT was often impossible to determine from observation or the history what missile had produced a particular injury. Of the gunshot wounds we dealt with, approximately 60 per cent. were caused by rifle bullets and 40 per cent. by shrapnel. The rifle bullets in use on the Allies' side were of the Mannlicher pattern—0·322 inch bore. We came across no example of injury due to the light-pointed variety of missile used by the Turks. As this Mauser bullet is the same as that adopted by the German army some reference to its effect may be made. Fraenkel[1] says that from his experience he is of the opinion that rotation of the bullet after it has entered the body is common, that the exit wound is rather larger than is the case with the round-nosed bullet, and that lodging of the missile more frequently occurs. Colmus, Franz, and Fessler[2] make similar observations with regard to the nature of the exit wound. Shrapnel balls were often recovered from wounds and were of the usual soft type. Several irregular wounds caused by shell fragments were also observed.

With regard to the course taken by the wounds in general, healing by first intention was frequently seen. When the missile was a rifle bullet travelling at a high velocity this occurred irrespective of the part of the body hit, small dry scabs alone marking the point of the wounds of entry and exit. Wounds which were the result of shrapnel injuries usually suppurated, because by reason of their low velocity they often lodged in the tissues, carrying pieces of clothing with them, and more often causing irregular exit

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[1] Fraenkel: Wiener Klinische Wochenschrift, No. 6, 1913.

[2] Colmus, Franz, and Fessler: Verhandlungen des Deutschen Congresses für Chirurgie, March, 1913.

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his colleagues by their experiments demonstrated that Si
rice, when not over-milled, compares very favourably w
rice from other places, such as Rangoon and Saigon, and t
a beri-beri preventing rice can be prepared from Siam "pa
either by hand or steam mill and without the padi be
previously parboiled. The phosphorus content of a rice sho
not be less than 4 per cent., and this should be taken as
indicator of the safety or otherwise of the rice. In view
the overwhelming evidence incriminating over-milled rice
connexion with beri-beri, some reformers have stron
urged that the law should interfere to prohibit the sale
this rice which has by milling been deprived of cert
elements necessary for normal nutrition, but Dr. Higl
expresses the opinion that, for the present at least, legis
tion in that direction in Siam is not advisable, m
especially as it is not yet admitted what the actual substan
is, the remo which from the exterior of the rice gra
by the pr s to the development of be
beri in Meanwhile, the use
white,
navy
asy
gendai
result of t
appearance of
the Siamese army
Dr. Highet says, be pra
of the public service of the
population which has come to
reject any that is not well milled
that in time the force of education of the
of diet and as to the danger arising from the consu
rice deprived of some of its essential constituents will lea

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[1] THE LANCET, Jan. 28th, 1905, p. 256.

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suddenly in

Tetanus.

Eight cases of tetanus were treated in t
cases; none were met with during the sec
war. The incidence seems high, but similar r
with at this period at other Constantinople
the Servian side only 11 cases were reported
7000 wounded by Soubbotin.[3] Exner,[4] however

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[3] Soubbotin: Société de Chirurgie de Paris, Feb. 26t
[4] Exner: Wiener Klinische Wochenschrift, No. 6,

Type history of cases.—More than half the men affected were suffering from enteritis; all gave a history of having undergone long periods of exposure with insufficient food, while many had been left in wet trenches for 24 hours on end. The existence of the gangrene was often dated by the men from the time of their arrival in hospital, even in cases where the process was evidently of some standing.

Etiology.—Rye bread was not regularly used and so it may be excluded as a possible causative factor. Tight bandaging of the native type of foot covering and puttees has been considered by some to have originated the condition. We were unable to obtain any evidence of the existence of thrombosis in the main vessels. It seems probable that the gangrene was a vascular disturbance of the same nature as that occurring after frost bite, being induced by the exposure of exhausted men to the cold and wet. The dusky mottling seen on the feet of some cases with little or no gangrene exactly resembled the appearance seen after a slight frost bite.

Course.—The superficial cases and those in which only a few toes were involved were easily kept dry by the usual treatment. Separation of the dead part occurred in about 14 days. When the gangrene was more extensive, but not rapidly spreading or infected, amputation was performed after the formation of a line of demarcation. The cases in which the gangrene was moist and advancing, and when signs of toxæmia were present, usually proved fatal.

Fractures.

The contrast between the kind of injury caused by rifle-bullet wounds and those due to shrapnel was almost as marked in fracture cases as in those in which only the soft parts were involved. Several instances occurred in which a bullet traversed the end of a long bone without producing a fracture; the entrance and exit wounds were small and rapidly healed. In other cases the wounds from rifle-bullet injuries were of this simple class, and the bone was broken with but little comminution. Such cases ran the course of simple fractures. A fair number of fractures were seen which showed exit wounds of the explosive type after rifle-bullet injuries; in such cases the deposit of pieces of the mantle of the bullet among the fragments was common. The bone injuries produced by shrapnel, whether the ball lodged or not, practically all became infected; the extent of the comminution and fissuring was much more marked than in the previously mentioned type and consequently the after-course of the cases was more often complicated by necrosis.

Gunshot Injuries of the Skull.

We had under treatment 24 of these cases. Of the 13 fatal cases 6 were so severely injured that operation was considered useless. The following table shows the mortality of the different classes of injury met with:—

Nature of wound.	Recovered.	Died.
Wounds involving complete perforation of the skull and brain	4	7
Wounds involving the brain with aperture of entrance only	2	6
Tangential injuries with fracture of the comminuted gutter type	4	0
Depression of fragment without penetration ...	1	0

Seventeen cases were operated on, of which 10 recovered. The usual procedure was to raise a flap, including the wound of entry, all loose fragments were then removed, and any depressed area of bone elevated; trephining was not often necessary. A small tube was often left under the flap for 24 hours.

In only 1 case (that of a depressed fracture in the occipital region) was there much evidence of extradural hæmorrhage. Paralysis of the extremities was noted in 2 cases before operation; both injuries were gutter fractures over the motor area. In one case the fracture lay over the upper part of the left Rolandic area and was associated with a semi-paresis of three days' standing; the man made a complete recovery, except for the persistence of slight foot-drop on the affected side. In the other case only the right arm was affected and recovery of n

two days after operation the

convulsions, and 14 days later

turned down again but nothing abnormal found. The eyesight did not improve.

The non-fatal case which recovered without operation was one of a perforating rifle-bullet wound. The wound of entry was over the right frontal lobe near the mid-line, the bullet then traversed the right superior maxilla and emerged below the right mandible, the wound of exit being of the explosive type. The man was concussed on admission, but made a steady recovery, complicated by the formation of an abscess over the superior maxilla.

Definitely localised abscesses in the brain substance were evacuated in cases operated on 5 and 8 days after the injury (both proved fatal).

Our experience confirms the general opinion that operation for skull injuries should be carried out as soon as proper conditions are available. No doubt some examples of perforating wounds from high-velocity rifle bullets cause so little comminution of the bone that nothing need be done. We operated in one or two such cases, and one of us saw a remarkable example of the kind at a Turkish hospital. The man had almost symmetrical small healed wounds of entrance and exit over the mastoid processes, just above the level of the lateral sinus; but beyond symptoms of concussion for a few days following the injury he did not seem to be the worse for the experience when seen ten days later.

Fraenkel[8] recounts several cases of tangential fractures which made, as far as could be judged at the time, a complete recovery without operation. He is inclined to the opinion that operation should be reserved for those cases which show either symptoms of paralysis, irritation, or abscess formation.

Fractures of the Lower Jaw.

Seven cases came under treatment, 2 of which were due to injuries other than gunshot. In all instances there was an external wound which became infected. Two cases died, one from tetanus (Case 95 above), the other from double septic broncho-pneumonia. Severe broncho-pneumonia arose in 3 other cases. Considerable necrosis of the bone occurred in 2.

Though fixation was always difficult on account of the condition of the wounds, good union was obtained in the non-fatal cases. In one case with extensive comminution, plating the bone from the outside was attempted, but on account of the suppuration the result was not very satisfactory.

Fractures of the Bones of the Upper Extremity.

In all, 28 cases were treated as in-patients. The following table gives an outline of the results:—

Bone fractured.	Healed per primam.	Suppurated.	Fatal.
Clavicle	2	1	0
Humerus	3	9	6
Radius and ulna	2	2	0
Bones of the hand	0	6	0

The high mortality among the humerus fracture cases is striking; in 3 cases death was apparently due to embolism (see above); in the remaining cases death was definitely due in two cases to some other injury, and to tetanus in 1 (Case 95). No case of non-union occurred, and of those in which the wounds healed well the fracture soon consolidated.

Fractures of the Bones of the Lower Extremity.

The figures below give in outline the class of case treated and the results:—

Bone injured.	Recoveries.		Deaths		Total.
	Healed per primam.	Suppuration.	Healed per primam.	Suppuration.	
Femur...	5	3	0	11	19
Tibia and fibula (one or both bones) ...	3	19	0	7	29
Bones of the foot ...	1	2	0	0	3

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[8] Loc. cit.

The fatal results were attributed in the femur cases to the following causes:—

Dysentery (in one case amputation had been performed for gangrene)	3	Infection of knee-joint	1
Tetanus	4	Shock (other leg blown off) ...	1
Cranial injury	1	Septicæmia (double compound fracture)	1

Death in the cases of fracture of the leg was caused as follows:—

Tetanus	5	Dysentery	1
Septicæmia and dysentery ...	1		

The record of the experience in the Boer war had impressed on us the value of conservative treatment in the case of compound and gunshot injuries, and our general results confirmed this idea. Except for tetanus cases only 7 amputations were performed, and of these 5 proved fatal. It is true that our statistics for fracture and other cases do not compare favourably with those published on the South African war, but this seems to be due to the special conditions, which we have described above, in evidence during the early part of the Balkan campaign. The irregular nature of the transport and the inadequate immobilisation of fracture cases were also important factors tending to cause the infection and irritation of broken bones. On arrival at the base men with fractured femurs seldom had splints applied of sufficient length to fix either hip or knee-joint; injuries to the bones of the leg frequently came in with no other support than the dressing and a bandage. The problem of providing and applying proper fixation apparatus for all lower extremity cases after a big engagement seems to be a matter of considerable difficulty. In this particular case the substitute of lashing together the limbs was not practicable on account of the incomplete transport arrangements.

When in hospital it was remarkable how badly many patients tolerated any splintage or extension arrangements. The prejudice arose from the nature of the treatment commonly employed for fractures of the bones in the country; this is usually carried out by practitioners of the nature of bonesetters, without splintage—friction with oil and early mobilisation being applied.

For our femur cases we attempted the use of a Hodgen's splint and also of an extension apparatus rigged up by the carpenter; nevertheless, in the 6 cases of which I have notes the average shortening after union amounted to 2 inches. The aluminium splints made from material in the Royal Army Medical Corps fracture-box proved useful, though to contrive them satisfactorily requires a little practice and leisure.

Amputations.

In the whole series of our cases only 11 major amputations were performed; 4 of these were for tetanus cases and the remaining 7 for compound fractures, the results of which latter class were as follows:—

Bones injured.	Recovered.	Died.
Humerus	0	2
Femur	1	2
Tibia and fibula	1	1

The fatal issue was attributed to embolism in 2, dysentery in 1, septicæmia in 1, and secondary hæmorrhage in 1.

The cases of compound fracture of the tibia and fibula did well, save for those in which tetanus arose. In infected cases, as a routine, examination and removal of obviously loose fragments was carried out. In many instances more than one operation was necessary to remove necrotic fragments, but such a course seems preferable to removing in the first instance pieces of bone which may live. We had no case of actual non-union, though in several the consolidation was slow.

Injuries of the Spine.

Seven cases of this kind were admitted; slight infection of the wound was present in 2; paraplegia was complete in 5, and partial in 2. Four cases died; 2 with complete flaccid paralysis died from bedsores and urinary infection and 2 from dysentery—in one of the latter cases laminectomy had been performed nine days before death. In 2 cases due to a shrapnel injury operation was carried out.

CASE 1.—The injury was in the dorso-lumbar region, entry on the back ½ inch from midline. Complete paraplegia; knee-jerks present on one side. Laminectomy; the track of bullet was followed and the point of entry into the dura was seen to the right of the midline. There was evidence of considerable hæmorrhage, but no actual destruction of the commencing filaments of the cauda equina seen; after removal of all visible fragments the wound was closed. The wound healed well, but no definite improvement in the paraplegia was noted before the man's death from dysentery on the ninth day.

CASE 2.—Entry left side of neck to outer side of main vessels; X rays showed ball lodged at or about the left pedicle of the sixth cervical vertebra. On admission complete tion diaphragmatic. In the cour right arm passed off, and the right left arm and leg remained completely paralysed. Operation—laminectomy, dura opened; the bullet could not be found and no definite injury of the cord could be made out, so the wound was closed. Subsequently the man recovered considerable power in the left leg, but the arm remained paralysed. Probably the injury was outside the cord, and affected the root of the brachial plexus. The paraplegia was presumably the result of spinal concussion. Beyond weakening the man's neck the operation had probably little effect on the course of the case.

In one other case admitted with complete paraplegia from an injury in the mid-dorsal region recovery of the power in one leg was complete, and in the other partial. No operation was undertaken. This and the previous cases recorded above were the only instances of spinal concussion observed by us.

Injuries of Joints.

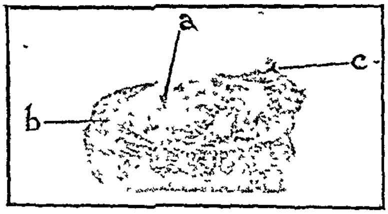
Of 11 cases of joint injury 8 involved the knee, 1 the shoulder, and 2 the elbow.

Of the *knee cases* seven showed no signs of suppuration within the joint, although in two the bullet lodged. The injuries in all the clean cases were due to rifle-bullet wounds, and though in all instances but one the bone had been traversed the small amount of damage done to the bones was very remarkable. Some fluid in the joint persisted till discharge in 3 cases, and in 5 some limitation of movement was left. One case proved fatal from a concurrent spinal injury.

In the *infected case* a shrapnel ball had lodged and splintered the lower end of the femur. Fragments of bone and the ball were removed and the joint was packed with gauze at regular intervals. However, on account of symptoms of septicæmia and spread of the infection amputation in the thigh was carried out five days later. Death took place from secondary hæmorrhage shortly after religature of the femoral artery.

The injury of the *shoulder-joint* was a remarkable example of traumatic excision of the joint. (Case 63.) The man was hit in the back of the left shoulder by the screw ring of the fuse of a shrapnel shell; by this a large gaping wound about 4 in. × 3 in. leading into the joint was caused, and lying loose in this cavity was the head of the humerus, cleanly detached and closely encircled by the ring. (Fig. 3.) The whole was pulled out on admission of the patient. Subsequent exploration, at which small splinters of bone and some fragments of clothing were removed, checked the suppuration, and the wound finally healed up, leaving the man with a useful arm. (Fig. 4.)

FIG. 3.



Missile which produced injury in Case 63. *a*, Articular surface of head of humerus, the whole being exactly wedged in the ring *b* from fuse of a 4" shell. *c*, Fragment of clothing fixed between head of humerus and ring. 2/5ths natural size.

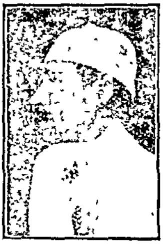
Injuries of Nerves.

With the exception of the cases in which severe infected injuries of the bones necessitated amputation only 4 cases of nerve injury were noted. They involved respectively the musculo-spiral, the sciatic, the anterior crural, and the external popliteal. The first two were associated with fractures of the humerus and femur. In both cases recovery of power was almost complete in six weeks.

The injury of the anterior crural followed a perforating rifle-bullet wound in the left groin just to the outer side of the vessels; the wounds of entry and exit were small and dry. For three weeks the power over the thigh extensors was absent but then slowly returned, and the man was discharged six weeks after admission with fair control of the limb.

The external popliteal case was the only one operated on. The injury was a perforating wound near the head of the fibula, complete paralysis in the distribution of the nerve being present. Exploration was carried out a week after the injury; the nerve trunk was found to be intact and merely involved in the bruising. Complete recovery of power occurred within in 14 days.

FIG. 4.



Case 63, showing wound of entry at the back of the shoulder when nearly healed.

Injuries of Arteries.

Only one case of traumatic aneurysm came under treatment. The left axillary region had been perforated by a rifle bullet five days before admission; the wounds were both small and healing. Pain and weakness of the arm were present, and a pulsating swelling could be felt in the axilla; this gradually increased in size, and so four days after admission operation was undertaken. The first part of the axillary artery was exposed and tied above an aneurysm the size of a pigeon's egg, involving the second part of the vessel; a ligature was then placed below the sac by which means all pulsation was checked. The man made an uninterrupted recovery without any signs of vascular disturbance or nerve injury.

Of arterial injuries leading to immediate results, that recorded under gangrene of the leg is one; in another case a rifle-bullet wound in the right iliac fossa led to such hæmorrhage into the pelvic tissues, and apparently into the peritoneum, that the man was moribund on arrival.

Injuries of the Thorax.

In the course of this and other wars many observers have been impressed by the comparatively benign nature of this class of wound. Our figures do not entirely bear out such conclusions; they are as follows: Total number of cases, 31; fatal, 9.

Number and Character of Wounds Involving Lungs.

Rifle bullet wounds	17	Bayonet wounds	2
Shrapnel ,, ...	12		

Number of perforating wounds	22
Number of perforating wounds in which practically no signs were present	6
Cases in which the missile lodged	8
Both sides injured (all fatal)	3

Complications.

	Recovered.	Died.
Broncho-pneumonia (severe)	5	3
Empyema	2	3
Pneumothorax	3	0
Hæmothorax (aspirated)	2	0
Surgical emphysema (extensive)	1	3
Pneumocele	1	0

The cause of death in fatal cases was allocated as follows:—

Broncho-pneumonia and empyema	3
General surgical emphysema associated with cyanosis suggestive of interstitial emphysema	1
Hæmoptysis	1
Injuries of both lungs (dyspnœa)	3
Abdominal injury	1

The incidence of severe broncho-pneumonia, which tended to spread from the seat of injury, was most marked in the early cases, their long neglect and exposure being no doubt the cause. The differential diagnosis from observation of physical signs in this class of case certainly offered a great field to the enterprising clinician. The amount of shock and distress arising from wounds of both lungs was always noticeable. All such cases which we saw proved fatal.

In regard to *treatment* a waiting attitude was adopted in all cases; exploratory aspiration was carried out in those instances where increasing dulness and persistent temperature or respiratory distress suggested it. Resection of ribs for drainage was carried out in 5 cases, 2 of which proved fatal. Bullets situated in the body wall were removed in 5 cases. Only 1 case of pneumothorax was aspirated; this condition tended to rapidly clear up as far as could be determined by rough examination.

The case of *pneumocele* occurred in a case in which the sixth, seventh, and eight ribs were shattered in the right nipple line; the missile was probably a fragment of shell, and an area of lung some 2 inches in diameter was exposed and prolapsed slightly. Local suppuration took place, but the wound healed in about four weeks, and later the chest wall became quite firm, shutting off the exposed area.

Injuries of the Abdomen.

In comparison to his activity in civil practice the surgeon in war time adopts a very passive attitude towards the abdomen. The records from previous wars have given convincing proof that any part of the abdomen may be perforated by a high velocity bullet and yet little harm ensue; at any rate, conservative treatment achieves much better results than is the case when operation is undertaken. That a rifle bullet, even when nearly spent, may do comparatively little harm in traversing the abdomen is well shown by one of our cases.

Patient admitted Nov. 13th, two days after abdominal injury; Mannlicher bullet, entry small and dry, 2 inches from the mid-line, 1 inch below the right costal margin; no exit. The bullet was felt lying with its long axis parallel to the surface just above the right iliac crest, 4 inches from the mid line. On admission [illegible] liver dulness was absent, and there [illegible] ess of the abdomen; there was no [illegible] was kept on a fluid diet and hot [illegible] abdomen; the pain and distension [illegible] without further complication, the [illegible] l. At his request the bullet was [illegible] Nov. 23rd.

Shrapnel injuries and cases with wounds of the explosive type, if they involved the intestines, gave little hope of recovery.

The following table gives an outline of our cases of abdominal injury:—

Wound of the abdominal wall only	2	Wound of bladder	1
		,, spleen...	2
		,, kidney	2
Presumed wounds of the intestines	15	Pleura involved also	3

Total number of cases, 20; fatal cases, 11.

Six cases were operated on; all of them except one proved fatal. The non-fatal case was carried out for a fistula after an injury to the rectum. Of the fatal cases, one was an exploration after an injury of the liver for a suspected abscess. Three exploratory laparotomies were performed; one case operated on 24 hours after injury died on the table. Details of the other two are as follows:—

Patient admitted Nov 18th. Hit by shrapnel about 24 hours pre- [illegible] general peritonitis.

One case of rifle bullet wound developed a localised abscess; death unfortunately occurred from dysentery 14 days later.

Patient admitted Nov. 8th, 10 days' history. Rifle bullet wound [illegible] point; exit in right loin 6 inches from [illegible] Prominent [illegible] 4 inches in [illegible] fæcal matter [illegible] n improved in general till Nov. 14th, when diarrhœa and vomiting came on; there was no evidence of extension of the peritonitis. Round worms (not uncommon among our cases) were brought up in large numbers. The *local condition remained practically stationary;* death on Nov. 18th was attributed to the effect of the diarrhœa.

With regard to the other fatal cases, general peritonitis was the apparent cause of death in all. No doubt many cases of this type died soon after their injury, or at any rate before they could reach a base hospital. Those which survived the first few days of transport but ultimately died, often lingered on for five or six days; two with signs of general peritonitis survived 10 and 14 days respectively.

The case of prolapse of omentum from the wound was as follows:—

Patient admitted Nov. 22nd, three days after injury; Mannlicher bullet wound. Entry left loin, dry, 5 inches from mid-line; exit a slit ¾ inch in length in left hypogastric area 2 inches from mid-line. Prolapsed through the latter wound was a pedunculated piece of omentum 3 inches in length; there was an inflammatory swelling palpable over an area about 3 inches in diameter deep to the wound. The omentum was tied and cut off flush with the skin and a dry dressing applied. There was slight purulent but no fæcal discharge from the wound for some days, but the inflammatory mass did not appreciably alter in extent. Diarrhœa and vomiting commenced on Nov. 28th, and the man died on Dec. 4th without any definite evidence of peritonitis being observed.

As the course of the latter two cases suggests, we think that the presence of dysenteric conditions at the time of or soon after the receipt of an abdominal injury must greatly prejudice the chances of recovery.

In conclusion, in commenting on this outline of our experience, it is to be admitted that no appreciable advance in the methods of dealing with gunshot wounds has been made. The conditions of war give little scope for specialised surgery; they do but call for a sound grasp of the simple principles of wound treatment and a due application of common sense. The possibilities for future advance must lie in a more ideal application of the rules of general hygiene in camp and on the march. To effect this purpose every man in the army must be educated to appreciate the vital importance of those principles.

BRITISH PHARMACEUTICAL CONFERENCE: JUBILEE MEETING IN LONDON.

THE fiftieth annual meeting of the British Pharmaceutical Conference was held in London on July 21st to 23rd and was attended by pharmacists from all parts of the country, many of whom were the official delegates of local associations, and by representatives of pharmaceutical organisations in Australia, France, Germany, Holland, and elsewhere. The first function was a reception at the Guildhall, the members being received by the chairman of the local committee, Mr. Edmund White, President of the Pharmaceutical Society, and Mrs. White, and the President of the Conference, Mr. John C. Umney and Mrs. Umney. The Lord Mayor and other civic dignitaries and a number of medical men were present. On Tuesday the members assembled at the Holborn Restaurant, which was the headquarters of the Conference, and after addresses of welcome had been made Mr. Umney delivered his presidential address.

President's Address.

The President dealt in considerable detail with the question of the revision of the British Pharmacopœia. At the outset Mr. Umney, who is a member of the Committee of Reference in Pharmacy (which assists the Pharmacopœia Committee of the General Medical Council), said that the British Pharmacopœia of 1914 was almost ready for publication, and in connexion with the revision of that work the Committee of Reference in Pharmacy, nominated by the councils of the Pharmaceutical Societies of Great Britain and Ireland, had done its work to the best of its ability, and in all loyalty to the General Medical Council; but he was confident that it was the last occasion upon which pharmacists would aid in the revision of the British Pharmacopœia on the conditions which now obtain. He hoped there would be no apprehension on this point in the minds of the General Medical Council or of the medical profession generally. He then proceeded to describe how revision and publication of the Pharmacopœia are managed in this country, and to describe how the national pharmacopœia is prepared in various foreign countries, placing particular emphasis on the fact that on the continent medicine and pharmacy are almost equally represented officially on the respective committees of revision. Mr. Umney did not question that the rights of the General Medical Council to publish the British Pharmacopœia could only be overruled by an Act of Parliament. It had been alleged that the General Medical Council had no power to elect members of the Pharmaceutical Society or nominate members of the Pharmaceutical Society on the Pharmacopœia Committee, so that the Committee of Reference in Pharmacy holds a subordinate position. In his view, however, the Medical Act of 1858 and the subsequent Act of 1862 do not confirm this statement, for the only duty placed upon the Council by statute is that of producing the Pharmacopœia under its supervision and authority, and there are no regulations as to who shall help, or the position of authority or otherwise that shall be given to those who do help. Moreover, pharmacists were on the first British Pharmacopœia Committees, Mr. Peter Squire being associated with the London, and Mr. James Robertson with the Edinburgh one. The question was how the modern pharmacist might secure the position in the making of a Pharmacopœia such as their *confrères* in every other country have. It has been suggested that it might be possible, now that the State had recognised both departments of medicine, that the Government might introduce a measure dealing with the subject, but the Government at the present time had its hands full of promised legislation, and from a Parliamentary point of view, perhaps the position was not opportune. He suggested, therefore, that the Pharmaceutical Society should give its most earnest and careful consideration to a Bill laying down the conditions under which future pharmacopœias should be revised and submit it, with a petition, to the Privy Council, in the hope that the Privy Council might see fit to introduce such a Bill into Parliament. Failing that, it would, he thought, be advisable that the Bill should be introduced into Parliament by the Parliamentary secretary of the Pharmaceutical Society. Finally, he submitted the text of a draft Bill providing for the publication of a British Imperial Pharmacopœia and for its periodical revision, which he thought might serve as the basis of the measure suggested. This draft Bill provides for the setting up of a Commission, to be called "The British Imperial Pharmacopœia Commission," consisting of the following members:—Six duly qualified medical practitioners, two of whom shall have had personal experience of general practice, to be nominated by the General Medical Council; the professor of Pharmaceutics in the School of Pharmacy of the Pharmaceutical Society of Great Britain; three registered pharmacists, one of whom shall have had practical experience in the wholesale commerce of drugs and in the manufacture of pharmaceutical preparations on a large scale, to be nominated by the Council of the Pharmaceutical Society of Great Britain; two registered pharmacists, to be nominated by the Council of the Pharmaceutical Society of Ireland; one duly qualified medical practitioner, who shall have had personal experience of medical practice in the Indian Empire, to be nominated by the Secretary of State for India; one registered pharmacist, who shall have had personal experience of pharmaceutical practice in the Empire of India, to be nominated by the Secretary of State for India; one duly qualified medical practitioner, who shall have had personal experience of medical practice in a British colony, to be nominated by the Secretary of State for the Colonies; one registered pharmacist, who shall have had personal experience of pharmaceutical practice in a British colony, to be nominated by the Secretary of State for the Colonies; the chief Government chemist; one analytical chemist, who shall have held an appointment as public analyst to a county or borough authority for not less than ten years, to be nominated by the Council of the Institute of Chemistry of Great Britain and Ireland; and a barrister-at-law of not less than five years' standing, to be nominated by the Treasury.

The Scientific Section.

Among the interesting papers read before this section may be mentioned one by Mr. R. Clode Guyer on the Possible Iodine Standardisation of Thyroids for Pharmaceutical Purposes; one by Professor Van de Wielen, of Amsterdam, on the Standardisation of Opium; and one entitled "The Myrrh of Commerce," by Mr. E. M. Holmes, curator of the museum of the Pharmaceutical Society.

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE (1913).

SECTION OF THERAPEUTICS.

THE Section of Therapeutics comprises also the subjects of Pharmacology, Physiotherapy, and Balneology. It is under the presidency of Sir Lauder Brunton, Bart., F.R.S. The secretaries are Professor W. E. Dixon, F.R.S., Dr. Fortescue Fox (for Physiotherapy and Balneology), and Dr. R. A. Young (acting secretary).

The meetings of the section will be held in Room 36 (the Astro-physics laboratory) of the Imperial College of Science and Technology, South Kensington. A laboratory meeting is also being arranged to take place in the Pharmacological Institute of University College, by kind permission of Professor A. R. Cushing, F.R.S., one of the vice-presidents of the section. Facilities will be offered for the experimental illustration of any of the special papers which lend themselves to it.

The following discussions have been arranged :—

1. Thursday, August 7th, on Defensive Measures of the Organism against Foreign Substances in the Blood, to be opened by Professor Paul Heger, of Brussels, and Professor E. Abderhalden, of Halle. Professor Ehrlich and Professor J. B. Leathes have expressed their willingness to take part in the discussion.

2. Friday, August 8th, on the Action and Use of Remedies for Pain and Sleeplessness (excluding anæsthetics, local and general), to be opened by Professor Hans Meyer, of Vienna, and Professor A. R. Cushing, of London. Dr. R. B. Wild, Dr. Robert Jones, and Dr. Risien Russell have also agreed to speak on this subject.

3. Monday, August 11th, on the Comparative Value of Cardiac Remedies, to be opened by Professor R. Gottlieb, of Heidelberg, and Dr. Theodore C. Janeway, of New York, U.S A. Professor Ferrannini (Camerino) and Dr. J. D. Windle are also expected to join in this *discussion*.

4. Tuesday, August 12th, on Thermal Treatment, its Indications, Limitations, and Risks, to be opened by Professor Landouzy, of Paris, and Professor Vinai, of Turin. Dr. Zagner, of Berlin, will also take part.

The afternoon sessions will be devoted to the reading and discussion of independent papers. The morning of the day (Saturday) on which the laboratory meeting is held will also be available for papers on the subjects of balneology and physiotherapy. A considerable number of papers have been offered to the section, but as yet few have been received from British observers.

It is proposed to hold the sectional dinner on Friday, August 8th, at the Mitre Hotel, Hampton Court. The arrangements in regard *to this 'are being made* by Dr. O. F. F. Grünbaum.

A ladies' committee is being formed to assist in the entertainment of the foreign ladies attending the Congress.

SECTION OF DERMATOLOGY AND SYPHILOGRAPHY.

The Section of Dermatology and Syphilography is under the presidency of Sir Malcolm Morris, K.C.V.O., and the meetings will take place at St. Thomas's Hospital Medical School.

The section is greatly indebted to the treasurer and governors of St. Thomas's Hospital for their generosity in granting the use of the school buildings, and to Dr. E. Stainer, the dean, for his assistance in regard to the arrangements. The place is an ideal one for the purpose. The large meetings are to be held in the hall of the hospital, while the smaller meetings will take place in the two theatres in the school. Ample accommodation is also afforded for the museum of models and illustrations, for the exhibition of microscopical specimens, and for the demonstration of rare cases of cutaneous disease. The Students' Union will be used as a club, and the Terrace will be a pleasant meeting-place for the members, and give our foreign guests an opportunity of appreciating one of the most attractive scenes in all London.

The subjects which have been selected for discussion are the following: 1. Epithelioma of the Skin, Benign and Malignant, which will be introduced by Dr. Darier, of Paris, who reported on *the same subject* at the Dermatological Congress in Berlin in 1904, and who will record the advances made in the subject since then; the other reporters are Dr. J. A. Fordyce, of New York, and Dr. Jadassohn, of Berne. 2. A discussion on Alopecia Areata and Allied Conditions will be opened by Professor Pellizzari, of Florence, and Dr. Sabouraud, of Paris. 3. A discussion on Syphilis, its Dangers to the Community, and State Control, conjointly with the Section of Forensic Medicine; this will be introduced by Professor Finger, of Vienna, Professor Gaucher with Dr. Gougerot, of Paris, Dr. Blaschko, of Berlin, and Major H. G. French, R.A.M.C. As this subject is of the greatest importance to the general health of the community it is expected that the meeting will attract a large number of members, and consequently it has been decided to hold it in the Albert Hall on Saturday, August 9th, at 9.30 A.M. 4. A conjoint discussion with the Section of Naval and Military Medicine on the Treatment of Syphilis by Salvarsan and Allied Substances, which will be opened by Professor Ehrlich, of Frankfort, Professor Neisser, of Breslau, and Professor Vennin, of Paris, while this country will be represented by Major T. W. Gibbard and Major L. W. Harrison, R.A.M.C. 5. A discussion on the Vaccine Treatment of Diseases of the Skin, which will be introduced by Professor T. C. Gilchrist, of Baltimore, and Professor Arthur Whitfield, of London.

A large number of papers have been accepted by the council of the section, some dealing with the subjects under discussion, while others are on independent subjects of special interest. These papers will be read and discussed at the afternoon sessions of the Congress.

Special attention will also be paid to the clinical aspect of the subject, and demonstrations of interesting cases will be held before the morning and afternoon sessions. These cases will be grouped as far as possible to illustrate the subject under discussion on each day.

Arrangements are now being made for the entertainment of the members. On account of the large number who are expected it has been found necessary to abandon the idea of a sectional dinner, and it has been decided instead to hold a reception at Prince's Restaurant on Monday, August 11th, at 9 P.M. A garden party will take place at St. Thomas's Hospital on one of the afternoons, to which members of this section will be welcomed. In addition to this, and the private hospitality which will be extended to individual members, an influential ladies' committee has been organised, under the direction of Lady Morris, to provide entertainment for the wives and daughters of the members.

The secretaries of the section are Dr. R. Cranston Low (editor of Transactions), Dr. J. M. H. MacLeod (acting secretary), *Dr. H. Leslie Roberts (provincial secretary)*, and Dr. J. H. Sequeira (secretary in charge of museums and clinical demonstrations).

SECTION OF ANATOMY AND EMBRYOLOGY.

The President of this section is Professor Arthur Thomson (Oxford); the Vice-Presidents are Professor A. Macalister, Professor R. W. Reid, Professor J. Symington, Professor J. T. Wilson, and Mr. C. B. Lockwood, and the secretaries Professor R. Howden and Dr. Alexander Macphail.

The number of set discussions is five. For the first, to be held jointly with the General Pathology Section, on the Excitatory and Muscular Connecting System of the Heart, Professor Külbs (Berlin) has been nominated as reporter by the council of the section. The other four discussions are confined to the Section of Anatomy, and the subjects chosen are the Early Stages of the Human Ovum (reporter, Professor A. C. F. D'Eternod, Geneva), the Morphology of the Sympathetic System (reporter, Professor Carl Huber, Ann Arbor, *U.S.A.), the* Morphology of the Shoulder Girdle (reporter, Professor Raoul Anthony, Paris), and Cerebral Localisation and the Precise Significance of Sulci (reporter, Professor C. U. Ariens Kappers, Amsterdam).

These discussions will be held at the morning meetings of the section in the Organic Chemistry *Theatre, Imperial* College of Science and Technology, and will be followed by a number of independent papers, which have been offered by the President of the Section, Professor McClure (Princeton, N.J.), Professor Huntingdon (New York), Dr. Aubrey Mussen (München), Professor F. G. Parsons (London), Dr. Koch (Upsala), Dr. Shirokogoroff

ndon), Professor A.
Wilson (London), and
eral other communica-
ddition. The council

propose that the afternoon meetings be held in the museum of the Congress in the form of informal demonstrations and discussions on the exhibits of anatomical interests which will be on view there.

The dinner of the section will be held in the Great Hall of St. Bartholomew's Hospital on the evening of Friday, August 8th; an informal "At Home" will be given to the members of the section by the President on one of the earlier evenings of the Congress.

The acting secretary is Dr. Macphail, St. Bartholomew's Hospital, London, to whom titles of papers and demonstrations should be forwarded without delay.

SECTION OF DISEASES OF CHILDREN.

The meetings of the section are to be held at the Royal Society of Medicine, 1, Wimpole-street, W.

The following discussions have been arranged for the morning sessions:—

Thursday, August 7th: The Treatment of Tuberculosis in Childhood from the Surgical Point of View, with especial reference to the Bones, Joints, and Glands. Reporters, Dr. Menard (Berck-sur-Mer, France) and Mr. H. J. Stiles (Edinburgh).

Friday, August 8th: Mortality in the First Few Weeks of Life. This discussion is to be held in conjunction with the Section of Obstetrics and Gynæcology and the Section of Hygiene and Preventive Medicine. Reporters, Dr. Koplick (New York, U.S.A.), Dr. A. K. Chalmers (Glasgow), and Professor Wallich (Paris).

Saturday, August 9th: Effects of the Ductless Glands on Development. Reporter, Professor Dr. Rudolph Fischl (Prague, Bohemia).

Monday, August 11th: Infection of the Urinary Tract with Colon Bacilli. Reporters, Dr. John Thomson (Edinburgh) and Professor Valagussa (Rome).

Tuesday, August 12th: Polioencephalitis and Poliomyelitis. Reporter, Professor Romer (Marburg, Germany.)

Papers for the afternoon sessions have been accepted, from the following authors:—Professor Jonkorsky (Dorpat Russia): Infantile Mortality in the First Month of Life, Contribution to the Clinical, Anatomical, and Pathological Study (Personal Observations). Dr. Coit (Newark, U.S.A.): The Viability of Children Deprived of Women's Milk During the First Year. Professor J. Comby (Paris): Encephalite Aigné chez les Enfants. Dr. D. B. Lees (London): Diagnosis of Pulmonary Tuberculosis in Childhood. Dr. Gauvain and Dr. Calvé (Berck-sur-Mer): Tuberculosis in Childhood. Dr. L. Findlay (Glasgow): Portals of Entry of the Tubercle Bacilli. Professor Cacace (Naples): Fermented Milk in Pædiatrics. Dr. Siegfried Weiss (Vienna): A New Symptom of Scurvy.

It is proposed on one afternoon to exhibit some interesting cases at one of the Hospitals for Children in London, and it is hoped to arrange for all the Children's Hospitals in London to be open to the visits of members of the section during the period of the Congress.

Arrangements have been made to visit the Lord Mayor Treloar Cripple Hospital at Alton, in Hampshire, on August 9th, and special excursions are also being arranged to the Idiots' Asylum at Earlswood, to the Carshalton Hospital, and other of the hospitals under the Metropolitan Asylums Board.

The President of the section is Dr. Eustace Smith and the acting secretary Dr. A. M. Gossage, 54, Upper Berkeley-street, W.

SECTION OF FORENSIC MEDICINE.

This section is under the presidency of Professor H. Harvey Littlejohn, and will meet in the senate room of the London University.

The following discussions have been arranged:—

Thursday, August 7th: 1. The Medico-Legal Aspects of Infant Mortality. Reporters: Professor Etienne Martin and Professor Mouriquand, Lyons; and Professor Dr. F. Strassmann, Berlin.

Friday, August 8th: 2. The Teaching of Forensic Medicine, including the Construction and Equipment of a Medico-legal Institute. Reporters; Professor L. Thoinot, Paris, and Professor Dr. H. Zangger, Zurich.

Saturday, August 9th: 3. Syphilis: its Dangers to the Community, and the Question of State Control. (Jointly with the Section of Dermatology and Syphiligraphy in the Albert Hall.) Reporters: Professor Dr. A. Blaschko, Berlin; Professor Dr. Ernst Finger, Vienna; Major H. C. French, R.A.M.C.; and Professor Gaucher and Dr. Gougerot, Paris.

Monday, August 11th: 4. Alcohol and Degeneracy. Reporters: Dr. Max Bratt, Stockholm; Dr. Benno Laquer, Wiesbaden; and Dr. Legrain, Paris.

Tuesday, August 12th: 5. The Psychology of Crime. (Jointly with the Section of Psychiatry in the Jehangir Hall, University of London.) Reporter: Professor Comm. E. Morselli, Genoa; and Professor Dr. Weygandt, Hamburg.

The President is giving a dinner to a large number of members on August 7th. Dr. J. Baker has kindly arranged to take a party over Broadmoor Criminal Lunatic Asylum on August 12th. Visits have been arranged to the museum and finger-print department of Scotland Yard. Members will be afforded facilities for visiting certain of H.M. prisons, and several of the London coroners have promised to admit members to any inquests they may hold during the Congress. A ladies' entertainment committee has been formed.

The secretary of the section is Dr. W. A. Brend.

SECTION OF MEDICINE.

The dinner of the Section of Medicine will be held at the Connaught Rooms, Great Queen-street, Kingsway, London, W.C., on Friday, August 8th, at 7.15 precisely. Tickets, price 25*s.* (including wine and cigars), may be obtained from Mr. George Bethell, 11, Chandos-street, Cavendish-square, W., and after August 5th also at the Royal Society of Medicine, 1, Wimpole-street, W., where the meetings of the section will be held. Dinner tickets will not be obtainable at the Albert Hall, as announced in a previous notice.

THE ROYAL SANITARY INSTITUTE.

THE Fourth Congress of the Sanitary Institute was held in Exeter in the year 1880, and after the lapse of 33 years another most successful meeting of the institute was held in that city from July 7th to 12th last. The business at the earlier congress was divided between three sections, dealing respectively with sanitary science and preventive medicine, engineering and sanitary construction, and meteorology and geology. At the last meeting meteorology and geology were unprovided for, but there were additional sections concerned with domestic hygiene and the hygiene of infancy and child study. There were also five conferences of municipal representatives, medical officers of health, engineers and surveyors, veterinary inspectors, and sanitary inspectors respectively. The need for these additional sectional meetings alone shows how largely hygiene has entered into every side of present-day existence.

Housing Question.—Immunity.

The President of the 1880 congress was the late Earl Fortescue, who was long identified with measures of sanitary reform, and the latest congress was fittingly presided over by the present Earl, who dealt in his presidential address in a very practical manner with the question of rural housing. He advocated letting cottages at an economic rent, and in consequence paying labourers accordingly, leaving landowners to provide sufficient cottages for the requirements of tenant farmers, and requiring the local authorities to provide housing accommodation for old-age pensioners and for those whom he described as "nobody's children," such as policemen, roadmen, and village tradesmen. Discussions on housing occupied a prominent place in the sectional meetings, though there was no unanimity as to the solution of the problems involved, the only agreement being that there must either be State aid, rate aid, or a rise in the labourer's wages. The housing question and the prevention of tuberculosis were admittedly bound up with one another, and Mr. H. R. Aldridge, in urging the provision of suitable homes for persons suffering from, or liable to suffer from, the disease, asserted that for the cost of one patient in a sanatorium five or six families could be housed in sanitary homes.

The question of immunity was referred to at some length by Mr. A. Wynter Blyth in his presidential address delivered in the section of Preventive Medicine. After tracing the various theories of immunity from their inception to the practical results accruing, he showed how the indirect methods of making the body resistant or immune by passing life as much as possible in the open air, at first applied only to invalids, was obviously applicable to the healthy, and how the open air education now being advocated would have a profound influence on the habits of the future generation The same question was incidentally referred to by Professor J Penberthy, F R C V S, who presided over the Veterinary Conference He evidently viewed with some favour the suggestion recently put forward, that the infection in early childhood by bovine bacilli through milk or food may be the means of creating immunity to human tuberculosis in later years In this conference a resolution was passed at the close of the discussion on Slaughter houses, introduced by Dr Herbert Peck, advocating the establishment of public slaughter houses

Tuberculosis

The principal discussion on Tuberculosis was introduced by Dr. Arthur Latham, who deplored the use to which the grant for sanatorium benefit was being put Food, fuel, overcoats, underclothing, &c, were being provided out of the fund, so that the real object of sanatorium benefit, the prevention of the disease, was being severely handicapped He criticised the appointment of medical officers of health as tuberculosis officers, and maintained that in too many instances the treatment of patients had been carried out by men of no special experience in the disease who were supervised by administrative and not by clinical experts Dr Duncan Forbes dealt with the question from the point of view of the medical officer of health and urged that treatment alone was not a serious factor in any scheme, but that the most effective work could be done by improved feeding and housing, by the education of the individual consumptive, and by the refusal of treatment and other comforts except on condition that the simple rules for the prevention of infection were implicitly obeyed

The domiciliary treatment of tuberculous patients was discussed by Dr J D Macfie, one of the tuberculosis officers of the Essex county council, in a thoughtful paper Tuberculosis, he said, must not be *taken away from* the general practitioner, whose intimate knowledge of the family was of considerable value and whose help should be cordially invited Domiciliary visitation and examination of every notified case was the only way of dealing effectively with tuberculosis In this connexion in a paper read before the conference of Medical Officers of Health Mr Herbert Jones referred to the obligation placed upon medical officers of health by the *latest tuberculosis regulations to visit* the homes of notified cases of the disease, and to the fact that this additional duty meant a considerable extra expenditure in travelling expenses to those officers who had no travelling allowance He considered that this expenditure should be borne by the central and not by the local authority

Other Discussions —Exhibition of Sanitary Appliances

Among other questions discussed were the Milk and Dairies Bill, water supplies from rivers, the lighting and ventilation of hospitals and domestic labour saving appliances As usual at these congresses there was brought together an exhibition of sanitary and other appliances, among which were excellent exhibits of electric cooking and of gas cooking The number of delegates present at the congress was about 800, and the sectional meetings were all well attended, in some cases the meeting rooms provided proving too small to accommodate those who desired to be present With very few exceptions the discussions were well sustained and distinctly helpful The congress of the institute is to be held at Blackpool next year during the second week in July

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LITERARY INTELLIGENCE —Messrs J and A Churchill announce a new work, entitled "Researches on Rheumatism," by Dr F J Poynton and Dr Alexander Paine The same firm has ready for early publication the eleventh edition of Swayne's "Obstetric Aphorisms" which is now edited by Dr W C Swayne, professor of obstetrics in the University of Bristol, also the seventh edition of "The Microtomist's Vade Mecum" by Mr A B Lee, the sixth edition of the late Professor Campbell Brown's "Practical Chemistry," edited by Dr Bengough, and the third edition of "A Text book of Physics," edited by A Wilmer Duff

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THE FINAL REPORT OF THE LUANGWA SLEEPING SICKNESS COMMISSION

EARLY in 1911 the British South Africa Company appointed a commission to inquire into the subject of trypanosomiasis, and especially to find out what was the transmitting agent of sleeping sickness in those parts of north eastern Rhodesia and Nyasaland where the usual vector of the infection, Glossina palpalis did not exist The commission comprised Dr Allan Kinghorn and Dr Warrington Yorke of the Liverpool School of Tropical Medicine, as medical members and Mr Llewellyn Lloyd as the entomological expert The investigations were carried out during 1911 and 1912 the headquarters of the commission being established at Nawalia in the Luangwa Valley for the most of the time, but being removed for a short period to Ngoa on the Congo Zambesi watershed, in order that some experiments might be made with a view to determine what influence if any, climatic conditions had upon the transmission of sleeping sickness Several interim reports have already been published, but it was thought *desirable to collect and correlate all the results in a final* report, and this has now appeared in the *Annals of Tropical Medicine and Parasitology* (Series T M, Vol VII, No 2)

Transmission of Trypanosoma Rhodesiense by Glossina Morsitans

The labours of the commission have placed it beyond dispute that the species of tsetse fly which acts as the true transmitter of the particular sleeping sickness parasite Trypanosoma rhodesiense, in the Luangwa Valley is Glossina morsitans, the same fly that acts as the vector of the infection of nagana, a form of trypanosomiasis met with in South Africa among domestic stock Unfortunately G morsitans appears to have a distribution far wider than that of G palpalis which had until recently been regarded as the sole transmitter of the virus of sleeping sickness The *incrimination of G morsitans, too, adds a further difficulty* to the eradication of the disease The fact was also established upon trustworthy evidence that a considerable percentage of wild animals in the Luangwa Valley are infected by T rhodesiense, more particularly the various kinds of antelope, and that they are therefore acting as reservoirs of the sleeping sickness virus There seems to be no essential difference between the clinical manifestations of the human *malady caused by the parasite,* T *rhodesiense transmitted by* G morsitans, and that form due to T gambiense, of which G palpalis is the vector, except perhaps, that the former is more virulent than the latter Approximately about 3 5 per cent of G morsitans in the Luangwa Valley may become permanently infective and capable of conveying the disease to man The period which elapses between the infecting feed of the flies and the date on which they become infective varies from 11 to 25 *days* The *special* experiments made at Ngoa or [illegible] respecting the transmission of [illegible] during the cold season were [illegible] developmental cycle of the try[illegible] influenced to a marked degree by the temperature to which the insects are subjected High temperatures (75° to 85° F) favour development of the parasite, while low temperatures (60° to 70° F) are *unfavourable The* first portion of the developmental cycle can proceed at a lower temperature, but for its completion the higher temperatures are essential It is somewhat remarkable that the parasites may persist in the fly in an incomplete stage of their development for at least 60 days under favourable conditions These observations would seem to afford an adequate explanation of the extremely long latent periods of trypanosomes in glossina *occasionally* noticed by other investigators The relative humidity of the air has apparently no influence on the development of the trypanosome in G morsitans

Transference of Virus

As has been already stated, the chief reservoir of the sleeping sickness virus in the Luangwa Valley is found in the *antelopes*, on the other hand, careful search *failed to find* the human trypanosome in a large number of monkeys, wild rats and mice which were examined Trypanosomes of various kinds are common in the blood of wild game and domestic stock in the area in question, and the commissioners say that as a conservative estimate 50 per cent. of big game in the Luangwa Valley and 35 per cent. at Ngoa are infected with trypanosomes pathogenic to man and cattle. With regard to the actual transference of T. rhodesiense by G. morsitans, it was shown that this could only occur if the salivary glands of the fly were infected. The first part of the developmental cycle of the trypanosome takes place in the gut of the fly, and in order to complete it and to secure invasion of the salivary glands a relatively high mean temperature (75° to 85° F.), as already indicated above, is necessary. Invasion of the salivary glands was only found in flies infected with T. rhodesiense. The predominant type of trypanosome in the intestines of infected G. morsitans, a large broad form, is quite different from that which predominates in the salivary glands, where the parasite resembles somewhat the short form seen in the blood of the vertebrate host. Both the intestinal forms and those found in the salivary glands of infected G. morsitans are virulent when inoculated into healthy animals.

Relationship of Big Game.

One of the commissioners, Dr. Yorke, has recently contributed a paper to the Proceedings of the Zoological Society of London on the Relationship of the Big Game of Africa to the Spread of Sleeping Sickness, and on the basis of his experiences in the Luangwa Valley he urges the advisability of attempting to exterminate the big game in the vicinity of human habitations. He is convinced, apparently, that if anything is to be done to prevent the extension of trypanosomiasis in man and domestic stock in South Central Africa, where he has been making his investigations, it should be done in the direction of destroying the reservoirs of the virus from which G. morsitans derives the infection. To this end he suggests that the present restrictions as to the killing of game by native hunters and Europeans should be removed in certain areas as an experiment. He believes that the sources of the trypanosomic infection would be greatly reduced in amount through the killing of the animals which at present serve as the reservoirs of the virus, and consequently the risks run by human beings of contracting the terrible malady of sleeping sickness would be greatly lessened.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are among the amounts received at the Mansion House to date. Total available for distribution about £52,000.

	£	s.	d.
West London Synagogue	289	0	0
Holy Trinity, Sloane-street	285	0	0
Christ Church, Mayfair	133	0	0
St. Paul's, Avenue-road, N.W.	117	0	0
Victoria Park Christian Evidence Association	100	0	0
Ascension Church, Lavender Hill	52	0	0
Wandsworth Parish Church with Holy Trinity	52	0	0
J. H. Vavasseur and Co., Limited	52	0	0
St. Matthew's, Denmark Hill	41	0	0
German Church, Camberwell	40	0	0
St. Gregory's, Earlsfield	40	0	0
[illegible]	39	0	0
[illegible]	35	0	0
[illegible]	35	0	0
St. John's, Notting Hill	34	0	0
[illegible]	31	0	0
[illegible]	30	0	0
[illegible] Stamford Hill	29	0	0
[illegible], Hampstead	29	0	0
All Saints, Blackheath	29	0	0
St. Mary's, Ealing	28	0	0
St. James's, Holloway...	28	0	0
Holy Redeemer, Stoke Newington	27	0	0
Christ Church, North Brixton	26	0	0
St. Simon's, Paddington	26	0	0
St. Mildred, Lee...	25	0	0
St. Margaret's, Plumstead	24	0	0
Whitefields Tabernacle	24	0	0
St. Michael's, Highgate	24	0	0
Lewisham High-road Congregational Church	24	0	0
All Saints, Highgate	24	0	0
St. Andrew's, Stoke Newington	22	0	0
St. Mark's, Kennington	21	0	0
St. John's, Palmers Green	21	0	0
St. Pancras Parish Church	21	0	0
St. Mary's, Finchley	21	0	0
Worshipful Company of Vintners	21	0	0
Ferme Park Baptist Church, Hornsey	20	0	0
St. Jude's, Kensal Green	20	0	0

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Annual Meeting.

THE annual meeting of the association was held at the rooms of the Medical Society on July 16th and 17th, under the presidency of Dr. J. G. Soutar, and later that of the new President, Dr. James Chambers. The morning session was occupied with the business of the association. Satisfaction was expressed at the successful work of the subcommittee deputed to watch the progress of the Mental Deficiency Bill, and its chairman, Dr. T. B. Hyslop, was specially thanked. The first function of the afternoon was the formal presentation by Dr. Soutar, on behalf of the association, to Dr. H. Hayes Newington, of his portrait in oils, the work of Mr. W. W. Ouless, R.A., and a testimonial on vellum, the occasion being Dr. Newington's fortieth year of connexion with the association, of which he has been president and chairman of the Parliamentary Committee, and of which he is now treasurer.

After hearty votes of thanks to the retiring president, Dr. Chambers was inducted to the presidential chair, and his first function was to present the Gaskell prize to Dr. Rees Thomas, of East Sussex Asylum, and the Bronze medal to Dr. Mackinley Reid, of Horton Asylum. Dr. Chambers then delivered his presidential address, taking as his subject

The Prevention of the Insanities.

He said that since the study of rational preventive methods must be largely concerned with causation the starting point was clearly indicated. In this investigation he believed that he was inevitably concerned not merely with cause, but with purpose, and that the complete answer to the Why? that eternally confronted us was only obtained when the existence of ultra-mechanistic factors was admitted. The complex of causative agencies which must be recognised in the case of the insanities was one which, if the phrase be allowed, had extension in two dimensions. In the delirium of typhus fever the physical agencies at work were presented in formidable rank, but in certain insane conditions which were hardly to be distinguished clinically from such delirium one had to do battle with an enemy whose Indian file issued in dim perspective from the gloomy recesses of the unknown past. In the realm of bodily development reference was made to the work of Adami and others, who had found in hormonism a possible explanation of the manner in which the doctrines of the continuity of the germ plasm and of the transmission of certain acquired characters could be reconciled. Continuing, Dr. Chambers announced his adherence to both these doctrines, and proceeded to consider the individual as progenitor, as parent, and as social unit. In the capacity of progenitor the individual was described as a mere shell for segregated germ plasm, in which determinants and unit characters were already neatly sorted out for rearrangement; regarded as parent, Dr. Chambers pointed out that a belief in the transmission of certain acquired characters opened up a vista of possibilities and required the admission of imperative responsibility. The various schemes for the betterment of the race were referred to in the light of recent theory and past experience, and it was insisted on that in order that one should interfere to the best advantage the most comprehensive survey of the many factors involved should be undertaken. Dr. Chambers emphasised the enforcement of segregation in certain well-defined circumstances, and reviewed the various functions of the already available machinery for the care of those mentally affected. He stated that the coördination and systematisation of the special agencies in the form of centres for research, psychiatric clinics and hospitals of different aim and purpose, together with that of the After-care Association were no less worthy of recognition and furtherance by the State than was the marshalling of the laboratory, the dispensary, the sanatorium, and the convalescent home or colony in the crusade against tuberculosis. In conclusion, the keynote of reliance on the evocation of that purposeful effort which, as it had earlier been shown, was now recognised by philosophers and biologists, as well as by physicians, was again struck. It was further asserted that if in the desire to frame some attractive scheme of glittering merit we are ever tempted to forget the present sufferer from mental disability and his pathetic needs, we should be reminded that for him also the greatest hope of restoration lies in our inculcation, so far as we have the dynamic force, and he the capacity for response, of the necessity for personal effort. And when there is little or no hope that we may evoke such helpful response, in devoted care of the straggler from our ranks, there is a task not lightly to be evaded which, if accomplished, will bring with it a rich burthen of racial reward, but, if neglected, will entail an inevitable Nemesis."

Traumatic Neurasthenia.

Dr. Campbell Thomson, dean of the Middlesex Hospital, read a paper on this subject, pointing out that neurasthenia had no boundary line, its symptoms merging into psychasthenia, melancholia, obsessions, hypochondriasis, and other conditions.—Sir George Savage, Dr. E. S. Pasmore, Dr. Robert Jones, Dr. W. F. Menzies, and Dr. J. Carswell took part in an interesting discussion which followed.

The Annual Dinner.

The dinner was held at the Café Monico, London, on July 16th, Dr. Chambers presiding. The large company included the Lord Mayor of Cardiff, the President of the Royal College of Physicians of London, Sir John Jardine, M.P., Sir George Newman, Sir John Collie, Sir David Semple, Mr. Ouless, Mr. K. MacLeod, K.C., the Hon. John Mansfield, Mr. E. G. Easton (chairman of the London County Council Asylums Committee), Dr. C. Hubert Bond and Mr. A. H. Trevor (Commissioners in Lunacy), Dr. Hyslop, Dr. D. G. Thompson (President-elect), Dr. Newington, Dr. Campbell Thomson, and the honorary secretary, Dr. M. A. Collins. The toast of "The Medico-Psychological Association" was proposed by the Lord Mayor of Cardiff, who commended the good work done by the association, especially in the training and certification of mental nurses. Referring to the importance of investigation into the causes and treatment of insanity and the research work being carried out at Cardiff the Lord Mayor paid a warm tribute to Dr. Edwin Goodall. The chairman, in a brief and graceful reply, spoke of the zeal and knowledge shown by the citizens of Cardiff and expressed the hope that 1913 would be a memorable year through the passing into law of the Mental Deficiency Bill. The health of "Our Medical Brethren" was proposed by Sir James Crichton-Browne, who reminded his hearers that he was one of the oldest members of their body and had served as its president 34 years ago. He traced the history of the association from the days when it was a little coterie meeting in the vicinity of asylums and known as "the wandering lunatics." It had always adhered to scientific methods and kept abreast of scientific developments in other fields. He thought that the association was entitled to be heard upon the subject of forcible feeding in order to correct prevalent erroneous notions. He was sure that all his fellow members would agree that this procedure had saved tens of thousands of lives, and that to call it a dangerous and painful operation was grossly wrong and misleading. The toast was responded to by Sir Thomas Barlow, President of the Royal College of Physicians of London, who dwelt on the value of sympathy and comradeship between old and young members of the medical profession. While specialism was inevitable, and, indeed, one of the conditions of progress, there was all the more need for bringing the different arms of the profession into community. The health of the guests was proposed by Dr. Soutar, the retiring president, who referred to Mr. Ouless's excellent portrait of Dr. Newington, for 20 years their treasurer, which he had that afternoon presented to Dr. Newington on behalf of the association. The toast was coupled with the names of Sir George Newman, chief medical officer of the Board of Education, and Dr. G. B. Longstaff, who each replied. Finally, the health of the President was proposed by Sir George Savage and received with enthusiasm. During the evening the "Westminster Singers" gave a number of pleasing glees and part songs.

Other Communications.

On Thursday the first paper was by Dr. C. A. Mercier. It was discussed by Sir George Savage, Dr. J. Carswell, Dr. Robert Jones, Dr. Stanley Gill, and the author replied.

Dr. H. Salter Gettings read a paper on Dysentery, Past and Present, with especial Relationship to the Origin of Asylum Dysentery.

Dr. Barton White made a contribution on Bacteriological Examination of the Urine in Some Cases of General Paralysis. Dr. Soutar, Dr. Collins, Dr. S. C. Howard, and Dr. W. Dawson discussed the subject, and praised the contribution.

Dr. Bedford Pierce presented an interim report of the subcommittee on the condition and status of assistant medical officers in asylums, and in doing so made out a strong case for improved conditions. He showed that the number of patients assigned to each medical man was quite out of keeping with efficient attention to each patient, and stated that while the number per officer in America was 145, going up to 197 in private asylums, in England it was one medical officer to 302.

Dr. R. G. Rows, Dr. Soutar, Dr. T. W. McDowall, Dr. D. Bower, Dr. H. C. Thomson, Dr. G. Clarke, and Dr. Collins debated the matter, and the report was unanimously approved and the committee reappointed.

ASYLUM REPORTS.

Bootham Park Registered Hospital for the Insane, York (Annual Report for the Year 1912).—The average number resident in this asylum was 115. During the year 1912 there were admitted 44 patients. The mean ages of those received was 50·1 years; the youngest was a man aged 21 and the oldest was a man aged 91. Excluding transfers and voluntary boarders there were 22 direct admissions, and in 14 of these a distinct history of such circumstances as worry, overwork, or shock was obtained, lending support to the belief that such factors are partly causal in the production of mental illness, probably by lowering the tone of the body generally and rendering it an easy prey to toxins and auto-intoxications. In only 2 patients was the health regarded as fair, giving strong weight to the widely accepted belief that a person who becomes ill mentally is practically always at the same time in poor bodily condition, and strongly supporting the argument that cases of recent or acute insanity should be treated by rest in bed. During the year 29 persons were discharged, of whom 16 were recovered. The proportion of recoveries to receptions was 72·7 per cent., whilst the proportion of recoveries to the total number under treatment was 10·7 per cent. The mean age on recovery was 43 years in 15 of the 16 cases; the sixteenth, an old man 91 years of age, recovered after an attack of mania which had lasted about 4½ months. The average duration of the illness in 15 of the 16 cases was a little over 9 months, and one patient was discharged after having been in the institution for several years. Seven deaths occurred during the year, the mean age at death being 58·2 years. At the time of death the average duration of the mental illness was a little over 8 years. We regret to note the resignation of Dr. C. K. Hitchcock, who for nearly 30 years had held the post of medical superintendent.

Cumberland and Westmorland Lunatic Asylum (Annual Report for the Year 1912).—At this asylum the daily average number resident was 849. The admissions numbered 179, the number corresponding closely with the average of the ten years preceding 1911. The ages of those admitted ranged from 11 to 76 years. Thirty had been previously under care in this asylum. The principal causative factors ascertained in connexion with the direct admissions were hereditary predisposition in 46 cases, alcoholism in 20 cases, and mental stress in 20 cases. In 49 cases no causative factor was ascertained. Ninety-five patients were discharged, 72 as recovered, 11 as relieved, and 12 as not improved. The recovery rate calculated on the direct admissions was 42·6 per cent.—a highly satisfactory proportion. 54 per cent. of those who recovered were brought to the asylum within a fortnight of the onset of their attack of mental illness, and 76 per cent. were brought within three months. Only 3 recovered whose attack had lasted over a year before admission. Dr. W. F. Farquharson, medical superintendent, points out that many cases, if treated in their earlier stages, are eminently curable, but that, more than all other diseases, mental cases require from their onset skilled supervision and care amidst proper surroundings. From mistaken, though no doubt kindly, motives relatives are apt to delay the removal of a patient to an asylum, and too often, when at last the patient is taken there, it is found that the curable stage of the disease has passed. The disinclination of a section of the community to send their relatives to an asylum is due to two causes, both of which are removable. The first, which appears to be gradually diminishing, is ignorance as to the nature of asylums; they are in reality hospitals for the treatment of disease, conducted on the most modern lines. The second cause is the state of the law, which prevents a patient being treated in a hospital for mental disease until a reception order, signed by a magistrate, has been obtained. It is desirable that there should be an alteration in the law so that incipient cases of curable insanity could be admitted for treatment to institutions, for at least a limited time, without the necessity of obtaining a magistrate's order, the present procedure being reserved for cases that are chronic or have tendencies to be dangerous to themselves or others. Deaths numbered 63, the rate being very low—7·4 per cent. on the daily average number resident. In all cases post-mortem examinations were held.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Metropolitan Borough of Wandsworth.—Dr. P. Caldwell Smith's annual report for 1912 may be commended to any student of public health administration who wishes to obtain a clear impression of the multifarious nature of the work of a well-organised public health department in London and the valuable results which are secured by it. We may note a few of the various matters which make up the record of the year. The tables of house-to-house inspection under the Housing Acts show that 2674 houses were visited, of which 1875, or 70·1 per cent., contained certain deficiencies which necessitated the service of a preliminary or "intimation" notice, the highest percentage being in Streatham ward and the lowest in Putney. When to these are added the "intimation" notices served in connexion with the requirements of other Acts the total becomes 6620. The deficiencies referred to in these notices included overcrowding of persons in dwellings, want of yard paving, water-closet and drainage needing repair, defective water-cisterns and ashpits, nuisances due to keeping of animals and various other causes, and only in a relatively small number of cases was it necessary to follow them by statutory notices and legal proceedings. As many as 956 yards in connexion with dwelling-houses, and 103 in connexion with stables, were paved, drained, or cleansed; 5248 rooms and 1043 staircases and passages were cleansed or repaired, while reconstruction of house drains was carried out in 257 cases. The large amount of work carried out to abate nuisances due to dampness is noteworthy; in all, 1559 premises came under notice during the year on account of dampness, and in 596 of these damp-courses have been inserted. Dr. Caldwell Smith states that he has visited all these premises, as well as many others where damp-courses had been inserted in previous years, and is satisfied that the dampness has been quite removed and the houses rendered much healthier. The baths at the disinfecting station have become less used than formerly owing to diminution in the number of verminous children for which they are required and the cleansing provision now made at some of the County Council's elementary schools. A new slaughter-house has been licensed in Wandsworth for slaughtering horses for human food, and during the year 90 horses have been slaughtered on the premises, the meat in all cases being exported. The report gives a list of the licensed slaughter-houses in the borough and specifies the particular restrictions which are attached to various licences. Some energetic action was taken in 1912 to enforce the provisions of the Rag Flock Act, 1911, and the official regulations made under this Act which requires that the proportion of soluble chlorine in rag flock shall in no case exceed 30 parts of chlorine in 100,000 parts of flock. Several instances of very dirty flock were encountered, including one in which the inspector found filthy flock, containing 326 parts of chlorine per 100,000, being used in the upholstering of new furniture. Only 7 of the 14 samples procured for analysis complied with the very moderate standard of cleanliness which the chlorine limit represents. Milk adulteration continues to be common in this part of London, no less than 10·39 per cent. of milk samples being adulterated. It is unsatisfactory to note in this connexion that the samples procured by the borough inspectors on delivery to private houses showed an adulteration rate at least three times as heavy as that of the samples taken from public institutions, from retailers' premises, or at the railway stations. In one case a milk vendor, when the inspector asked for a sample of milk from a certain can containing about eight quarts of milk, deliberately upset the contents. Enough was, however, secured for analysis, and the so-called milk was ascertained to contain 57 per cent. of added water. A fraudulent practice which has given much trouble is that carried out by itinerant vendors of "butter," known as canvassers, who go from house to house soliciting orders and selling samples, their wares being, in fact, margarine or margarine with a very small admixture of butter. Dr. Caldwell Smith instituted in 1912 a useful series of observations on the presence of lead in ginger-beer sold on licensed premises as a result of the use of lead pipe between the barrel and the hand-pump on the counter. Of 13 formal samples of ginger-beer thus supplied 12 contained lead in amounts which varied from 0·5 to 9·8 grains per gallon. A prosecution under Section 3 of the Sale of Food and Drugs Act, 1875, failed on a technical ground; probably in like case proceedings under Section 6 of the same Act would have had better chance of success. The publicity given to the matter, however, should be the means of putting a stop to a practice which Dr. Caldwell Smith rightly asserts to be dangerous to the health of the public. We may conclude by a reference to the table showing the number of deaths from pulmonary tuberculosis year by year and the proportion of these which occur in public institutions. In 1912, out of 303 such deaths 86 (28·3 per cent.) occurred in Poor-law infirmaries and 43 (14·2 per cent.) in general or special hospitals. The percentage tends to increase in both classes of institution, and it is worth noting that now little more than half the cases of pulmonary tuberculosis in Wandsworth die at their homes.

Metropolitan Borough of Stoke Newington.—Dr. H. R. Kenwood, in his annual report for 1912, gives prominence to the work of official and voluntary health visitors in visiting infants shortly after birth. The borough health visitor lays stress on the futility of calling to give advice in the cases, which appear to be many, in which the mother is in a condition of considerable poverty. In such instances some practical assistance is absolutely necessary if mothers are to take advantage of the advice which the health visitor is sent to give and to which she is at present restricted. On the question of measles, Dr. Kenwood considers that, in view of the limited nature of the hospital accommodation at present available at the Metropolitan Asylums Board hospitals for cases of this disease, the additional advantage which compulsory notification would supply is not very great. Already a very large number of cases come to the knowledge of the local authority without compulsory notification through the education authority and in other ways. Handbills are distributed at the houses visited, and it is proposed to add to them a statement to the effect that a limited amount of hospital accommodation is available for the most necessitous cases, and to invite applications at the town hall. Similar considerations apply to whooping-cough. Dr. Kenwood, who is also public analyst of the borough, points out that the addition of boric acid to milk has not yet ceased, and cites the case of a young adult, aged 18, suffering from flatulent dyspepsia and associated conditions, whose ordinary supply of milk, sampled on three occasions at short intervals during July, was found to contain 5, 7, and 11 grains of boric acid per pint respectively. The milk-supply was changed with beneficial results. Such practices on the part of milk vendors can now be easily put a stop to by applying the powers conferred on local authorities by the Milk and Cream Regulations of the Local Government Board. Dr. Kenwood urges that the practice of colouring milk should definitely be made illegal. He finds that it is becoming more common year by year and serves to cloak the watering of milk and the abstraction of fat. A useful circular-letter on the prevention of infantile diarrhœa appended to the report states that it is desirable to boil well all milk given to infants and to use no raw milk during the summer months. It is added that "pasteurised and sterilised milk is safer than raw milk, and can now be obtained as cheaply" For those for whom the circular is intended, however, we think it might be better to limit the advice to domestic boiling, the greater security of cheap milk represented as "pasteurised" or as "sterilised" cannot be regarded as in all cases fully assured

Metropolitan Borough of Islington —Mr A E Harris's pamphlet on the health of Islington during the first quarter of the present year contains an interesting note by one of the borough meat inspectors on the presence of foot and mouth disease in frozen ox tongues arriving from Russia In the course of examination of two such consignments of ox tongues at a canning factory 301 tongues were found to have peeled patches of the mucous membrane which appeared suspicious Specimens of the second consignment were obtained which showed lesions identical with those of foot-and mouth disease, the diagnosis being confirmed on reference to the Local Government Board, the Royal Veterinary College, and the Board of Agriculture The tongues in question were surrendered and destroyed Under an arrangement with the London County Council the borough council since the beginning of the year has undertaken the cleansing of verminous school children, and has carried this out in 253 cases Mr Harris is of opinion that this undertaking must prove a great boon to the school children of the borough, as many of them were in a most pitiable and neglected state The clothing is thoroughly disinfected in a small steam disinfecting apparatus specially installed for the purpose and Mr Harris states that the vermin found in some of the garments is almost beyond credibility

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS

IN the 96 English and Welsh towns, with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 8859 births and 3871 deaths were registered during the week ended Saturday, July 19th The annual rate of mortality in these towns, which had been 11 3, 11 2, and 11 4 per 1000 in the three preceding weeks, fell to 11 3 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these towns averaged 13 5 against 13 3 per 1000 in London during the same period Among the several towns the death rates last week ranged from 1 9 in Devonport, 4 6 in Northampton, 4 8 in Eastbourne 5 2 in Swansea and 5 6 in Smethwick, to 16 4 in Middlesbrough, 17 5 in Gloucester, 17 9 in West Hartlepool 18 8 in Bootle, and 19 6 in Stoke on Trent

The 3871 deaths from all causes in the 96 towns were 49 fewer than the number in the previous week, and included 343 which were referred to the principal epidemic diseases, against 281 and 344 in the two preceding weeks Of these 343 deaths, 149 resulted from infantile diarrhoeal diseases, 68 from measles, 62 from whooping cough, 35 from diphtheria, 20 from scarlet fever, and 9 from enteric fever, but not one from small pox The mean annual death rate from these diseases last week was equal to 1 0 per 1000, against 0 8 and 1 0 per 1000 in the two preceding weeks The deaths of infants under two years of age attributed to diarrhœa and enteritis which had increased from 90 to 155 in the four preceding weeks, slightly declined to 149 last week, and included 34 in London, 18 in Liverpool, 11 in Manchester, 10 in Birmingham 8 in West Ham, and 5 each in Stoke on Trent, in Walsall, in Leeds and in Sheffield The deaths referred to measles, which had declined from 87 to 69 in the four preceding weeks, were 68 last week, of this number 17 occurred in Stoke on Trent, 16 in London, 5 in Liverpool, 5 in Manchester, and 4 in West Bromwich The fatal cases of whooping cough, which had been 68, 53, and 55 in the three preceding weeks, rose to 62 last week, 13 deaths were recorded in London, 4 each in Birmingham, Liverpool, Manchester, and Hull, and 3 each in Willesden, Leeds, and Sunderland The deaths attributed to diphtheria, which had been 31, 24, and 34 in the three preceding weeks, were 35 last week, and included 6 in London, 3 in Tottenham, and 3 in Stoke-on-Trent The deaths referred to scarlet fever, which had been 15, 13, and 17 in the three preceding weeks, further rose to 20 last week, 4 deaths were recorded in London, 3 in Sheffield, 2 in Birmingham, 2 in Manchester, and 2 in South Shields The fatal cases of enteric fever numbered 9, against 6, 9, and 14 in the three preceding weeks, and included 2 in London

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had increased from 1418 to 1833 at the end of the five preceding weeks, further rose to 1978 on Saturday last, 357 new cases were admitted during the week, against 286, 314, and 315 in the three preceding weeks These hospitals also contained on Saturday last 884 cases of diphtheria, 315 of measles, 283 of whooping cough, and 43 of enteric fever, but not one of small pox The 901 deaths from all causes in London were 59 fewer than the number in the previous week, and corresponded to an annual death rate of 10 4 per 1000 The deaths referred to diseases of the respiratory system, which had been 126 106, and 137 in the three preceding weeks declined to 115 last week, and were 2 fewer than the number in the corresponding week of last year

Of the 3871 deaths from all causes in the 96 towns, 174 resulted from various forms of violence and 335 were the subject of coroners' inquests The causes of 30, or 0 8 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in London and in its 14 suburban districts, in Sheffield, Leeds, Bristol, Hull, Newcastle on Tyne Nottingham, and in 60 other smaller towns Of the 30 uncertified causes of death, 7 were recorded in Birmingham, 3 in Liverpool, 3 in Bootle, 3 in Gateshead, 2 in Rochdale, and 2 in South Shields

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns, with an aggregate population estimated at 2,259 600 persons at the middle of this year, 1177 births and 570 deaths were registered during the week ended Saturday, July 19th The annual rate of mortality in these towns, which had been 14 9, 13 7, and 13 6 in the three preceding weeks, further declined to 13 2 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these Scotch towns averaged 16 3 against 13 5 per 1000 in the 96 large English towns Among the several towns the death rates last week ranged from 9 0 in Kilmarnock, 9 5 in Hamilton, and 9 8 in Clydebank, to 16 8 in Ayr, 17 6 in Falkirk, and 18 9 in Dundee

The 570 deaths from all causes were 21 fewer than the number in the previous week, and included 61 which were referred to the principal epidemic diseases, against 89 and 71 in the two preceding weeks Of these 61 deaths, 28 resulted from measles, 13 from infantile diarrhœal diseases, 11 from whooping cough, 5 from diphtheria and 4 from scarlet fever but not one from enteric fever or from small pox These 61 deaths from the principal epidemic diseases corresponded to an annual death rate of 1 4, against 1 0 per 1000 in the 96 large English towns The deaths attributed to measles, which had been 35, 38, and 27 in the three preceding weeks, were 28 last week, and included 20 in Glasgow, 3 in Aberdeen, and 2 in Dundee The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 12, 21, and 17 in the three preceding weeks declined to 13 last week, of this number 4 were recorded in Glasgow, 4 in Dundee, and 3 in Motherwell The fatal cases of whooping cough, which had been 15, 20, and 16 in the three preceding weeks, further declined to 11 last week, and included 8 in Glasgow The 5 deaths attributed to diphtheria, of which 3 occurred in Glasgow were equal to the average in the five preceding weeks Three of the 4 deaths from scarlet fever, and a fatal case of typhus were registered in Glasgow

The deaths referred to diseases of the respiratory system, which had been 78, 71, and 79 in the three preceding weeks, fell to 71 last week, 23 deaths resulted from different forms of violence, against 24 and 30 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the 27 town districts of Ireland, with an aggregate population estimated at 1,199,180 persons at the middle of this year, 608 births and 349 deaths were registered during the week ended Saturday, July 19th. The annual rate of mortality in these towns, which had been 16·7, 16·4, and 15·5 in the three preceding weeks, further declined to 15·2 per 1000 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 19·1 per 1000; in the 96 large English towns the corresponding rate did not exceed 13·5, while in the 16 Scotch towns it was equal to 16·3 per 1000. The annual death-rate last week was equal to 15·9 in Dublin (against 10·4 in London and 12·5 in Glasgow), 15·8 in Belfast, 13·6 in Cork, 14·0 in Londonderry, 14·9 in Limerick, and 24·7 in Waterford, while in the remaining 21 smaller towns the mean death-rate did not exceed 12·3 per 1000.

The 349 deaths from all causes were 7 fewer than the number in the previous week, and included 28 which were referred to the principal epidemic diseases, against 25 and 36 in the two preceding weeks. Of these 28 deaths, 16 resulted from infantile diarrhœal diseases, 4 from measles, 3 from scarlet fever, 3 from diphtheria, and 2 from whooping-cough, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases last week was equal to 1·3 per 1000; in the 96 large English towns the corresponding rate did not exceed 1·0, while in the 16 Scotch towns it averaged 1·4 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 11, 9, and 15 in the three preceding weeks, were 16 last week, and included 11 in Dublin, 4 in Belfast, and 1 in Waterford. The 4 deaths referred to measles were slightly below the average in recent weeks, and comprised 2 in Londonderry and 2 in Waterford. The 3 fatal cases of scarlet fever and 2 of the 3 deaths from diphtheria were recorded in Belfast. The 2 deaths from whooping-cough were registered in Dublin and Bray respectively.

The deaths referred to diseases of the respiratory system, which had declined from 71 to 52 in the five preceding weeks, slightly rose to 56 in the week under notice. Of the 349 deaths from all causes, 100, or 29 per cent., occurred in public institutions, and 5 resulted from different forms of violence. The causes of 13, or 3·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned surgeons have been promoted to the rank of Staff-Surgeon in His Majesty's Fleet:—Walter Goldsworthy Edwards (dated June 9th, 1910), Robert Francis MacMahon (dated Nov. 21st, 1910), Walter Graham Moore-Anderson (dated Nov. 23rd, 1911), Edward Michael William Hearn, Samuel Henry Vickery, and Maurice Willoughby Haydon (dated Nov. 21st, 1912).

The following appointment has been notified:—Staff-Surgeon: F. C. Robinson to the *Adventure*, temporary.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel James Thomson, Royal Army Medical Corps, to be Officer in charge of the Royal Army Medical Corps Records (dated July 1st, 1913).

Colonel J. M. Irwin, Deputy Director of Medical Services to the South China Command, has arrived home on leave of absence.

Lieutenant-Colonel G. H. Barefoot, on arrival home from Ranikhet Cantonment, has been appointed to the London District for duty at Millbank. Lieutenant-Colonel R. Caldwell has arrived home for duty from the Military Hospital at Pretoria, tour expired. Lieutenant-Colonel T. G. Lavie has been appointed to command No. 30th Company of the Royal Army Medical Corps at Cottonera, Malta, in succession to Lieutenant-Colonel H. M. Sloggett, transferred to the Home Establishment. Lieutenant-Colonel H. Carr, senior medical officer at Ambala Cantonment, has been appointed to officiate as Assistant Director of Medical Services to the Sirhind and Jullundur Brigades.

Major J. H. Barbour has been transferred from the Military Hospital at Kamptee to Ferozepore Cantonment. Major J. B. Clarke, specialist in operative surgery at the Military Hospital, Colchester, has been placed in charge of the District Mobilisation Equipment. Major S. O. Hall has been transferred from the Military Hospital at Karachi Cantonment to Hyderabad, Sind, and appointed Senior Medical Officer. Major E. Brodribb has been appointed to hold charge of the Valetta Military Hospital at Malta, in succession to Major H. S. Thurston. An exchange has been approved by the Director-General, on the roster for service abroad, between Major G. B. Crisp, serving at recruiting duties in the London District, and Major W. M. B. Sparkes, serving at Dublin; the former officer will now proceed abroad instead of the latter. Major L. Wood has joined for duty at Quetta. Major F. J. Palmer has arrived home on leave of absence from Ambala Cantonment. Major T. F. Ritchie has been appointed to the London District. Major J. E. Brogden has been appointed to hold charge of the Detachment and Military Hospital at Imtarfa, Malta. Major A. W. N. Bowen has been granted an extension of leave of absence home from India, with permission to revert to the Home Establishment at its expiration. Major J. P. Silver has been transferred from the Military Hospital at Cork to Kilworth. Major M. H. Babington has embarked on H.M.S. *The Black Prince* from Malta for special service in Scutari. Major E. G. Ffrench has been appointed Specialist in Venereal Diseases and Dermatology to the Ninth (Secunderabad) Division of the Southern Army in India. Major E. E. Ellery has arrived home on leave of absence from the Military Hospital at Cairo. Major F. P. Hewitt has been granted an extension of leave of absence home from India to Nov. 6th next on medical certificate.

Captain N. E. J. Harding has arrived home for duty from the Sierra Leone Protectorate, tour expired. Captain C. G. Sherlock has been transferred from the Military Hospital at Lahore to Dalhousie Cantonment. The following Captains have been selected to attend the promotion course to the rank of Major at the Royal Army Medical College: J. C. Hart, C. Kelly, C. McQueen, A. W. Bevis, G. H. Stack, and R. H. Nolan. Captain T. McC. Phillips has arrived home on leave of absence from the Military Hospital at Fyzabad Cantonment. Captain A. W. Byrne has been transferred from the Military Hospital at Jullundur to Dalhousie Cantonment. Captain F. H. M. Chapman has been appointed Staff-Surgeon at Meerut Cantonment. Captain J. A. Bennett has taken up duty as Specialist in Electrical Science at Poona Cantonment. Captain G. S. Parkinson has arrived home for duty from the Military Hospital at Pretoria, tour expired. Captain W. H. S. Burney has been transferred from the Military Hospital at Attock to Khanspur Cantonment, Murree Hills District. Captain J. E. M. Boyd has been appointed Specialist in the Prevention of Disease, and placed in charge of the Bacteriological Laboratory at Brigade Headquarters, Ferozepore Cantonment. Captain K. Comyn has joined at Gibraltar. Captain C. M. Rigby has arrived home on leave of absence from the Military Hospital at Bombay. Captain G. P. A. Bracken has been granted an extension of leave of absence home from India to Sept. 30th next, with permission to revert to the Home Establishment on expiration thereof. An exchange of duty in India has been approved between Captain E. C. Whitehead to the Eighth (Lucknow) Division, vice Captain M. P. Leahy to the Home Establishment. Captain F. A. H. Clarke has been transferred from the Military Hospital at Multan to Darjeeling Cantonment. Captain A. W. A. Irwin has been appointed to the Cork District. Captain A. M. Pollard has arrived home for duty from the Military Hospital at Bloemfontein, tour expired. Captain R. J. Franklin has taken up duty at the Military Hospital, Solon, on transfer from Lahore. Captain C. E. L. Harding has been permitted to extend his tour of service in India by one year. Captain F. W. W. Dawson has been transferred to Kasauli from Ambala Cantonment. Captain W. B. Rennie has been granted six months' leave of absence home from India. Captain F. C. Lambert has been appointed to hold medical charge at Brownslade Camp, on transfer from Pembroke Dock. Captain E. M. O'Neill has joined at Youghal. Captain H. T. Wilson has been transferred from the Military Hospital at Maidstone to Chatham. Captain A. C. Amy has joined at Agra.

Lieutenant J. K. Gaunt has embarked on H.M.S. *The Black Prince* from Malta for special service at Scutari. Lieutenant

W. T. Graham has been transferred from the Third (Lahore) Division to the Eighth (Lucknow) Division. Lieutenant D. Reynolds, on arrival in India for a tour of duty, has been appointed to the Military Hospital at Rawal Pindi Cantonment to undergo a course of instruction in Indian sanitation. Lieutenant H. J. S. Shields has joined at Windsor. Lieutenant T. J. Hallinan has been transferred from the Eighth (Lucknow) Division to the Third (Lahore) Division. Lieutenant E G. S. Cane has taken up duty as Specialist in the Prevention of Disease and in charge of the Bateriological Research Laboratory at Brigade Headquarters, Colaba, Bombay. Lieutenant J. L. Huggan has taken up duty in the London District. Lieutenant H. F. Panton has been appointed to hold Medical Charge at Fargo Camp, Salisbury Plain, on transfer from the Military Hospital at Tidworth. Lieutenant C. M. Finney has been transferred from the Third (Lahore) Division to the Second (Rawal Pindi) Division. Lieutenant W. Bisset has taken up duty at the Military Hospital, Dagshai, on transfer from Ambala Cantonment. Lieutenant S. P. Sykes has been transferred from the Royal Herbert Hospital at Woolwich to Kingston-on-Thames. Lieutenant A. G. MacIlwaine has left Deepcut for a tour of duty in India, and on arrival will be appointed to the Fourth (Quetta) Division. Lieutenant R. E. Porter has been transferred from Cork to Waterford.

INDIAN MEDICAL SERVICE.

The King has approved of the promotion of Lieutenant-Colonel Bruce Gordon Seton to *Brevet Colonel* (dated June 30th, 1913).

Lieutenant-Colonel F. C. Pereira has arrived home on leave of absence from India. Lieutenant-Colonel E. V. Hugo, Professor of Surgery at the Government Medical College, Lahore, has been granted one year's furlough home from India. Lieutenant-Colonel C. H. James has been appointed Civil Surgeon at Simla, in succession to Lieutenant-Colonel C. Duer, whose tenure of the appointment has expired. Lieutenant-Colonel W. Ronaldson Clark has been appointed to Jullundur as Civil Surgeon. Lieutenant-Colonel W. G. Pridmore, ophthalmic surgeon to the General Hospital at Rangoon, has been granted two years' leave of absence combined with furlough home from India.

Major D. McCay has been appointed to officiate as Professor of Materia Medica at the Government Medical College, Calcutta, during the absence on leave of Lieutenant-Colonel B. H. Deare. Major M. Mackelvie has been granted five months' extension of leave of absence. The services of Major H. M. Mackenzie have been placed at the disposal of the Home Department. Major H. A. Williams, D.S.O., resident medical officer at the General Hospital, Rangoon, has been transferred. Major A. G. McKendrick has been granted two years' leave of absence combined with furlough home from India. Major V. H. Roberts has taken over medical charge of the Chindwara District. Major J. W. Megaw, on return to duty from leave of absence, has been appointed Civil Surgeon at Monghyr.

Captain W. P. G. Williams has arrived home on leave of absence from India. The services of Captain T. C. McCombie Young have been placed permanently at the disposal of the Government of Assam for employment in the Sanitary Department. Captain D. P. Goil, civil surgeon at Mymensingh, has been allowed privilege leave of absence combined with study leave and furlough for two years and eight months. Captain A. K. Munro has been appointed to the substantive Medical Charge of the 128th Regiment of Pioneers, in succession to Captain W. J. Frazer. Captain R. Markham Carter has been appointed by H.E. the Governor of Bombay to officiate as Professor of Pathology at the Grant Medical College, Bombay, in succession to Major E. F. G. Tucker. Captain A. J. Symes has arrived home on leave of absence from India. The services of Captain F. W. Sumner have been placed permanently at the disposal of the Government of the United Provinces of Agra and Oudh. Captain H. Stott has taken up duty as Surgeon to H.E. the Governor of Madras Presidency. Captain A. E. Grisewood, chief plague officer in the Central Provinces, has been granted eight months' leave of absence. The services of Captain Ba Ket, an officiating civil surgeon in Burma, have been replaced at the disposal of the Home Department of the Government of India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned to be Lieutenants (on probation):—Cadet George Harris Haines, from the University of London Contingent, Officers Training Corps (dated June 17th, 1913). [illegible] Gwynne Jones, from the University [illegible] Officers Training Corps (dated [illegible]). Lance-Corporal John Francis William Meenan, from the Belfast University Contingent, Officers Training Corps (dated June 27th, 1913).

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st East Anglian Field Ambulance, Royal Army Medical Corps: Lieutenant-Colonel Francis A. Brooks resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 19th, 1913).

2nd London (City of London) Field Ambulance, Royal Army Medical Corps: Leonard Austin Harwood to be Lieutenant (dated June 2nd, 1913). Hubert Pinto-Leite to be Lieutenant (dated June 16th, 1913).

Eastern Mounted Brigade Field Ambulance, Royal Army Medical Corps: Captain Meredith S. Doublile resigns his commission (dated July 23rd, 1913).

Supernumerary for Service with the Officers Training Corps: Harold Kinder Griffith (late Lieutenant, 9th (County of London) Battalion, The London Regiment (Queen Victoria's Rifles)) to be Lieutenant, for service with the Medical Unit of the University of London Contingent, Senior Division, Officers Training Corps (dated July 23rd, 1913).

Attached to Units other than Medical Units.—Lieutenant Hugh Davies resigns his commission (dated July 19th, 1913).

For attachment to Units other than Medical Units.—James George Hayes to be Lieutenant (dated May 30th, 1913). John Wotherspoon to be Lieutenant (dated June 17th, 1913).

Correspondence.

"Audi alteram partem."

THE COMING AMENDMENT OF THE NATIONAL INSURANCE ACT, 1911.

To the Editor of THE LANCET.

SIR,—It is acknowledged on all sides that the claims for sickness benefit under the above Act are very largely exceeding the number which were expected and estimated for, and that this is causing very great anxiety to the managers of both Friendly and Approved Societies. Various suggestions have been made for the curtailment of these claims, especially one that there should be appointed four "medical advisers" for the whole of London, whose duty it would be to visit [illegible] and after consultat[illegible] Local Committee as to whether the [illegible] suffering from ill-health and whether the certificate of the panel doctor is correct, and for this difficult and responsible work a fee per visit of 7*s.* 6*d.* has been suggested. This suggestion is, as it stands, quite impracticable, as no medical man of standing and authority would agree to make visits and hold *consultations* anywhere in a quarter of London at a fee of 7*s.* 6*d.*, and it is also certain that panel doctors could not be expected to hold *consultations* with these medical advisers without a consultation fee. Again, the report of the medical adviser would have no authority, as each case would after all be decided by the Local Committee, chiefly consisting of lay members.

I shall be much obliged if by your courtesy I may be allowed to put the following before your readers, as the whole question is of the greatest importance to the profession.

1. There is, no doubt, an immense amount of malingering, and it is freely alleged that in many cases where an assured person gets out of work temporarily there is a great inducement to attempt to obtain the 10*s.* a week sickness benefit,

and that therefore a story is told to the panel doctor for the purpose of obtaining a certificate.

2. It is very difficult for a panel doctor to decline to attend a person complaining of ill-health and run the risk of being exposed in the local press as a careless, heartless, or ignorant man.

3. Every medical man whether in consulting or general practice is obliged to rely largely on the statements made to him by his patients, and even in cases of suspicion it is impossible for an attending medical man to inform a patient that there is nothing the matter with him, and that he is obsessed with an idea that he is suffering or else that his statements are deliberately untrue.

4. Under the Workmen's Compensation Act, 1906, there has occurred a judgment of the Court of Appeal which is of great importance even outside the Compensation Act; it is that a workman need not submit himself to an operation, however much it is advised by an employer's or insurance company's medical examiner, unless it is approved by the workman's usual medical attendant. This decision has apparently been arrived at on the ground that a medical man in constant attendance on a patient must know more of his constitution than a medical examiner, however specially qualified, who has only seen the case once or twice. Although many will not wholly agree with this contention, yet the very fact that the decision stands will prevent the opinion of a panel doctor being disagreed with except on exceptional grounds.

5. Although there are many malingerers, there is another very potent cause for the excessive number of claims which are being made on Friendly and Approved Societies. In its inception the Act was largely based on the statistics of Friendly Societies, and their average of sickness claims entirely resulted from the fact that their members were healthy lives, having been carefully examined by the club doctors before they were admitted to membership. The intention of the Act was clearly that the societies should continue to select healthy lives, admitting persons to membership after a medical examination, but this has not been done, for in the strenuous competition which has occurred between Friendly and Approved Societies every safeguard has been discarded and members have been accepted without medical examination.

6. The result of the above is that with a large amount of malingering there are also large numbers of persons in genuine ill-health, and practically unable to work, who have been accepted by the societies, and of whom the societies would now gladly get rid.

7. The question is of the greatest importance to the taxpayers of the country, who will have to bear the financial burdens of the Act, to Friendly and Approved Societies, and last, but not least, to all assured persons who may have to claim under the Act; it is, therefore, essential that although the honest poor should have their rights and that they should be assured of the benefits for which they have paid, on the other hand, it is equally essential that the State and Friendly and Approved Societies should be protected from fraudulent claims.

In view of the whole of the above I do not think that anyone conversant with the subject will dispute that it is absolutely necessary that thoroughly experienced and independent medical referees should be appointed. 1. That they should be of a position and standing which would render them acceptable by panel doctors, and that their decisions should be "final and conclusive," as are the decisions of the medical referees under the Workmen's Compensation Act. 2. That an arrangement should be made for fees to be paid to panel doctors attending consultations with medical referees and according them full information as to the history of the case. 3. That as it would be of advantage that panel doctors should be able to call for the opinion of a medical referee whenever necessary, and that Local Committees should be able to have their advice without being trammelled by the question of expense, the fees of medical referees should be fixed by the Commissioners, with the consent of the Treasury, and paid out of moneys provided by Parliament in the same way as are the fees of medical referees under the Workmen's Compensation Act. These latter medical referees hold their appointments at the will of the Secretary of State, and the Home Office is in close touch with the county court judges who are conversant with the work of individual medical referees; machinery could, no doubt, be arranged so that the Secretary of State or the Insurance Commission should be in close touch with the work of the medical referees and able to exercise the necessary supervision.

I am, Sir, yours faithfully,

Fellows-road, N.W., July 17th, 1913. ALBERT BENTHALL.

VOICE TRAINING.

To the Editor of THE LANCET.

SIR,—An influentially signed memorial was presented to the University of London some time ago requesting the University to appoint a committee to investigate certain difficult matters in regard to voice and speech training. On Jan. 15th, 1910, a conference was held at the University of London, at which representatives of the following Universities were present:—Oxford, Cambridge, Durham, London, Wales, Birmingham, Liverpool, Leeds, and Sheffield, in addition to a certain number of the signatories to the original memorial. As a result of the conference it was decided to appoint a committee of investigation to inquire into the present knowledge concerning voice and speech training in order to ascertain the scientific basis upon which speech training should be conducted and what agreement exists in regard to first principles.

Owing to difficulties into which I need not enter at present only a portion of the work contemplated has been carried out. The committee was not constituted as a whole, but the following persons kindly consented to act in the first instance as a subcommittee to investigate normal healthy breathing in relation to speech:—Mr. H. H. Hulbert, M.A., M.R.C.S.; Dr. Arthur Keith, F.R.S., Hunterian Professor at the Royal College of Surgeons; Dr. William Pasteur, of the Middlesex Hospital; Dr. C. S. Sherrington, F.R.S., Professor of Physiology in the University of Liverpool; Dr. Peter Thompson, Professor of Anatomy in the University of Birmingham. With the consent of Dr. Pasteur, who has acted as chairman of the subcommittee, I enclose for publication their preliminary report, which I think is likely to be of interest to medical men, teachers, and other persons.

I am, Sir, yours faithfully,
HENRY A. MIERS, Principal.

South Kensington, S.W., July 18th, 1913.

[ENCLOSURE.]

VOICE TRAINING CONFERENCE.

REPORT OF SUBCOMMITTEE NO. 1.

Reference.—To Investigate Normal Healthy Breathing in Relation to Speech.

In view of the unforeseen delays encountered in carrying out the investigations referred to this subcommittee by the conference, it has been decided to present the subjoined preliminary report in the hope that it may prove useful to other subcommittees in the course of their inquiries.

Whilst recognising that the manner of breathing of healthy individuals may vary within certain limits, the subcommittee are of opinion that some general principles can be laid down with regard to the modifications of breathing necessary for action (speech, singing, and exercise). They are further of opinion that their conclusions can most conveniently be presented in the form of general statements, which they believe to be of fundamental importance.

1. The law of "reciprocal innervation" governs all muscular contraction.[1]

2. Ideal breathing (for voice) is carried out by those muscular movements which produce efficient expansion of the chest, under perfect control (provided always those muscles are kept out of action which interfere with the action of respiration; e.g., shoulder and neck muscles).

3. Such breathing should bring every part of the lung into activity.

4. Beyond a certain point every additional gain in expansion of the chest is at the expense of control, and is liable to lead to permanent deterioration of the muscles and injury to the lung.

5. Ideal breathing should secure a maximum of mobility of the chest and abdominal walls, such mobility being under perfect control.

It will be advantageous to consider somewhat more fully in what manner, and to what extent, the normal respiratory movements are modified by the introduction of speech. In health, respiration, properly carried out, brings the whole lung into activity, and in ordinary quiet breathing this process is (largely) automatic. Breathing for voice introduces a voluntary or quasi-voluntary factor—an addition to the purely respiratory function. By means which are under the control of the will the capacity of the chest can be so enlarged that [illegible] can be drawn into it [illegible] ion of the blood. This [illegible] apparatus of respiration under the direct influence of volition is what is meant by control; and without it sustained coördinated speech is impossible.

Breathing for voice, as contrasted with the breathing of repose which is automatic and mainly diaphragmatic, presents certain new factors.

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[1] See explanatory note by Professor Sherrington on next page.

Of these the employment of the diaphragm as a voluntary muscle is probably the most important. When the diaphragm acts in this way,

undertaken before any authoritative pronouncement can be made.

H. H. Hulbert, Arthur Keith, W. Pasteur,
April 8th, 1913. C. S. Sherrington, Peter Thompson.

Note by Professor Sherrington on "Reciprocal Innervation."

POOR-LAW INFIRMARIES AND THE TREATMENT OF SYPHILIS.

To the Editor of THE LANCET.

Sir,—It is interesting to learn from the letter of Mr. A. Lionel Baly in THE LANCET of July 19th that in the Lambeth Poor-law infirmary cases of primary and secondary syphilis are treated in special wards, and that every case which is considered suitable is given one or more doses of salvarsan. *But perhaps I may be allowed to express some disappointment* that he did not honour my Plea for the Appointment of a Royal Commission on Venereal Disease with a less cursory reading. I did not suggest that in Poor-law infirmaries "no use whatever is made of salvarsan." The words quoted were applied by me not to Poor-law infirmaries generally nor even to metropolitan Poor-law infirmaries generally, but to the three institutions at which inquiries had been made on my behalf. I expressly said that I had no detailed information about the metropolitan Poor-law infirmaries, and all that I suggested as to them was that their facilities for the treatment of syphilis according to modern methods were probably even less than those at the command of the general hospitals.—I am, Sir, yours faithfully,

July 22nd, 1913. Malcolm Morris.

SURGICAL TUBERCULOSIS IN CHILDREN.

To the Editor of THE LANCET.

Sir,—With much of Mr. A. H. Tubby's review of the methods and results of the treatment of surgical tuberculosis the majority of orthopædic surgeons will agree. In seeking, however, *to make good his case in favour of extra-urban v.* urban treatment he has compared the results of conservative treatment in the country with operative treatment in the town. Thus, he has contrasted results obtained by conservative treatment at the Sevenoaks Hip Hospital with results obtained by operative treatment in four London children's hospitals, and presented them to us as if they were really comparable. An opponent of his scheme would be perfectly justified in arguing that it was the conservative treatment which produced the better results, and not the climatic treatment; and he would be enormously strengthened in his argument by Sir Anthony Bowlby's statistics of the Alexandra Hip Hospital, published in 1908.[1] In 12 years there passed under Sir Anthony Bowlby's care 900 children with hip disease; they were treated by conservative methods; 867 were cured and 33 died, a mortality of 3·7 per cent. The hospital lies in the heart of London; and 266 of the 900 were treated in their own homes, and were never even in-patients.

During the last three years I have been working under Mr. T. H. Openshaw in the orthopædic department of the London Hospital, and I *know* that the very large majority of cases of surgical tuberculosis respond readily to efficient conservative treatment regardless of the east-end climate. Though perfectly aware of the value of extra-urban treatment in certain cases, may I venture to suggest that what is really wanted is increased hospital accommodation in London for these cases, where they can remain in-patients as long as is required, and where they can receive treatment on rigid conservative principles?

I am, Sir, yours faithfully,
Harley-street, W., July 21st, 1913. Paul B. Roth.

SUPRAPUBIC CYSTOTOMY.

To the Editor of THE LANCET.

Sir,—In his interesting and instructive paper published in THE LANCET of July 19th Professor F. C. Madden has drawn attention to a subject which has interested me for some time past, and which is of great importance—namely, the relation of the peritoneum to the dilated bladder.

Professor Madden rightly lays stress upon complete exposure of the parts in the operation of suprapubic cystotomy. It is stated in the text-books of anatomy and surgery that when the bladder is dilated the peritoneum is stripped off the front wall of the bladder. This is not at all an accurate *statement. From my experience of surgical operations,* backed up by anatomical investigation, I am in a position to make the following statements. When the bladder is dilated, so that its upper end lies well above the pubes, there is a narrow triangular area of bladder about ¼ in. broad and 1 in. long, uncovered by peritoneum, situated on its anterior surface, and just above the pubes. This is produced by the ascent of the urachus carrying with it a fold of peritoneum. On either side of this narrow triangular area there is the general peritoneal cavity extending downwards to below the level of the pubes.

In the operation for suprapubic puncture of the bladder a very slight deviation from the point indicated in the text-books will lead to the point of the trocar passing through the general peritoneal cavity on its way to the bladder, and I believe that general peritonitis has been caused by suprapubic puncture, and has been overlooked owing to the state of the patient, death being ascribed to the urinary condition, for which the suprapubic puncture was performed. If, on the other hand, the bladder is exposed in an operation, I am sure that it is necessary to push the peritoneum aside laterally, as well as upwards, in order to avoid cutting into the peritoneal cavity.

Finally, owing to lack of appreciation of the anatomical relations of the peritoneum to the dilated bladder, many surgeons teach that there is an area of dulness in front of the bladder. This may be so in a certain number of cases, but certainly not in the majority, as the intestines descend in front of the full bladder.

For this reason palpation of the distended bladder is of far greater clinical importance than percussion over the bladder area. Bearing in mind these anatomical relations, I am accustomed to teach that suprapubic drainage of the full bladder is a safer procedure than suprapubic puncture.

I am, Sir, yours faithfully,
Ralph Thompson,
Surgeon in charge of the Genito-Urinary
Department, Guy's Hospital.
Wimpole-street, W., July 22nd, 1913.

THE AUTHORSHIP OF THE LOCKER-LAMPSON AMENDMENT.

To the Editor of THE LANCET.

Sir,—I beg you will forgive my troubling you, but a mistake has arisen and I have been blamed by many doctors for an amendment to the National Insurance Act which will transfer the administration of medical benefits to Approved Societies. May I say that this amendment is not mine, is not down in my name, and has never had my knowledge or approval. It is proposed by my brother, Mr. Godfrey Locker-Lampson, with whom I have as yet had no opportunity of discussion.

Having received no less than 18 letters to-day alone from doctors upon the subject, I shall be very grateful if you would publish this contradiction. The mistake has arisen owing to the fact that I am conducting a "Fighting Fund" and appealing for help, and politicians interested in damaging this "Fighting Fund" have tried to suggest that I was opposed to the interests of the medical profession.

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[1] Brit. Med. Jour., June 20th, 1908; THE LANCET, March 7th, 1908.

May I say that no Member of the House of Commons is more entirely determined to do his best to secure fair play for the doctors than myself, and may I add that one of the objects of the "Fighting Fund" is to see justice done to every class and trade regardless of its voting power, and in particular to support at this juncture the great medical profession upon which our lives and well-being so largely depend. I am, Sir, yours faithfully,

OLIVER LOCKER-LAMPSON.

House of Commons, July 22nd, 1913.

*** We know that the error to which Mr. Locker-Lampson alludes is widespread, and have ourselves corrected it in several directions.—ED. L.

THE LADIES' PLATE AT HENLEY REGATTA.

To the Editor of THE LANCET.

SIR,—The letter of Mr. Shepherd Boyd in THE LANCET of July 19th raises an important question. I was at Henley this year when four public schools rowed. One crew I saw immediately after a losing race, but I did not see anything amiss with the boys. I also saw at different times during the afternoon, after they had rowed, several of the boys of the other crews There was nothing to indicate by their appearance or manner that they had done anything harmful. These observations confirmed the opinion I formed in 1912, after seeing three schoolboy crews row.

Is there any evidence to show that a sound, healthy, athletic boy, properly trained, has done anything which is injurious to himself by rowing at Henley? Public schools have now taken part in these races for so many years that there ought not to be any difficulty in pointing to such cases, if they exist.

As I believe the public schools will still continue to send crews to Henley, it would be of great public service if you would invite rowing men with experience as coaches, as well as medical men who have had special opportunities of gaining knowledge of this branch of athletics, to tell us what they considered to be the best course of training to properly prepare boys for these races.

I am, Sir, yours faithfully,

Putney, July 20th, 1913. T. A. I. HOWELL.

THE TREATMENT OF PULMONARY TUBERCULOSIS: ADMINISTRATIVE QUESTIONS.

To the Editor of THE LANCET.

SIR,—Surely the time has come for dropping the foolish anomaly of making a distinction, in separate establishments for administrative purposes, between early and advanced cases of pulmonary tuberculosis. I see the President of the Society of Medical Officers of Health, Professor E. W. Hope, is strongly of this opinion. There is no substantial reason, other than the sentimental notion of being able to advertise a large ratio of cures, for the present grievous distinction. For it *is* a grievous distinction, as far as the afflicted patient is concerned, to be segregated in a special asylum for hopeless cases of disease.

Further, why appoint special tuberculosis officers to supervise the work of the medical practitioner? If there be one ailment more than another the ordinary doctor is capable of dealing with, it is surely tuberculosis. It is to the private personal medical attendant that the public must look for the earliest detection of the disease. Without his help the tuberculosis officer is practically helpless. All that is really wanted is the provision of a public institution where a report can be got as to the presence or absence of the tubercle bacillus in a particular portion of sputum. If the evidence as a whole is sufficient, the attendant notifies; if it be not, he does not. Clearly the decision rests with him, and no official can interfere until the step is taken of formal notification.

There is no good in blinking the fact that before notifying his patient to be classed along with other lepers many considerations have to come in besides the mere threatening of a tuberculous attack, which the evidence of morbid anatomy shows may fall upon the otherwise healthiest individual at any moment, and by-and-by subside as quickly as it came.

I am, Sir, yours faithfully,

A PRACTITIONER OF OVER FIFTY YEARS' STANDING.

July 16th, 1913.

THE CANADIAN MEDICAL ASSOCIATION:

FORTY-SIXTH ANNUAL MEETING IN LONDON, ONTARIO.

(FROM OUR OWN CORRESPONDENT.)

(Concluded from p. 179.)

THE second general meeting was held on June 25th, at which Dr. H. A. MACCALLUM (London), the President, delivered the

Presidential Address.

Dr. MACCALLUM urged a more active interest on the part of the profession in Canada in the work of the Association. The Association was doing away with provincialism, and had inaugurated reforms of inestimable benefit both to the profession and to the public. With every Canadian practitioner a member, even greater things could be attained The necessity for funds to rescue the Association from exploitation by the commercial enterprise of certain manufacturing druggists was emphasised. The chemical industry of Germany was carefully organised, and it was difficult to know what to accept and what to reject Trained and scientific censors were needed to advise and assist in promoting legislation against nostrums. The promise of the Prime Minister of the Dominion, the Hon. R. L. Borden, that a Portfolio of Public Health would be created in the near future, he said, had given unbounded satisfaction to the profession. Without it a pure food law and Federal control of vaccines, serums, and drugs were impossible. The work of the Carnegie Foundation was praised, but the difficulty so common in Germany was encountered, that medical men were scientists first and practitioners afterwards—a reversion of the natural order of things. The modern medical student was overburdened with scientific subjects and laboratory work and insufficiently grounded in the fundamental principles of medicine and surgery, a mistake whereby the general practitioner suffered. The larger percentage of medical students now graduating trended towards surgical practice, and there was a grave danger that the medical practice of medicine would be thrust into the background. This was not in the best interests of the profession or of the public, and the nostrum habit was a natural consequence. Dr. MacCallum considered British methods of medical education superior to German, for they trained the student by practical work to become a practitioner, not a theorist. He advocated the annual medical examination of every adult. Insurance companies had adopted the plan of examining their clients annually, and it would be a wise policy for all men and women The institution of higher degrees and qualifications in medicine and surgery in the United States and Canada, Dr. MacCallum thought, would be advantageous to the profession. A low fee prevailed in many parts of the Dominion, and he hoped that a higher standard would soon prevail. More publicity, he thought, should be given to the achievements of medical science. In certain lines the profession had pursued this course with much success; as regarded vaccination against small-pox, for instance, and the anti-tuberculosis crusade. The adoption of similar methods in regard to vaccination against typhoid, and with reference to cancer, venereal, and other diseases, would doubtless be followed by equally good results. Finally, Dr. MacCallum was most emphatic in his conviction that the medical profession should not become a branch of the Civil Service.

The Address in Medicine.

Dr. LEWELLYS F. BARKER, Professor of Medicine at Johns

Hopkins University, Baltimore, delivered the address in medicine, which was a lecture, illustrated on the screen, concerning [illegible] internal organs of *secretion* [illegible] I was unable to take any notes [illegible] were turned out, but Dr. Barker [illegible] the *Journal of the Canadian* [illegible] written address on the subject.

Report on the Friedmann Cure.

The report of the committee of five appointed about three months ago by the Canadian Association for the Prevention of Tuberculosis to investigate the Friedmann remedy was read. The committee had studied the 161 cases inoculated by Dr. Friedmann in Montreal, Ottawa, Toronto, and London, with the aid of those physicians who had had the cases treated in their respective cities under their observation. The report of the committee, which was read by Dr. George D. Porter (Toronto) stated that as a result of the committee's observations from March 11th to the present time it seemed justifiable to conclude: 1. That the inoculations have neither *constantly nor frequently been followed* by marked change in the clinical course of the disease. 2. That the cure, or progress towards cure, claimed by Dr. Friedmann for the treatment has neither constantly nor frequently taken place in the time during which these cases have been under observation. 3. That the results have been disappointing, that Dr. Friedmann's claims for his remedy have not been *proved*, and that *nothing has been found to* justify any confidence in it. The report was signed by Professor J. George Adami, Professor J. J. Mackenzie, Dr. A. H. Caulfield, Dr. E. S. Harding, Dr. John W. S. McCullough, Dr. W. G. Ross, Dr. J. H. Elliott, and Dr. George D. Porter. Dr. Charles H. Hodgetts (Ottawa), a member of the committee, refused to sign on the ground, it was stated, that Dr. Friedmann *not having kept his* promise to divulge to the committee the exact composition of his remedy, the investigation was worthless and any report must be equally so.

Address on Mental Hygiene.

Dr. LEWELLYS F. BARKER gave an address on Mental Hygiene, which meant making men think better, *act better*, and become better. The imbecile, the criminal, the prostitute, and the insane were so because they had to be; their minds worked in that direction. The majority had been born with a bad brain and acted as their brain directed, while others, though born with a good brain, acted wrongly or criminally because so influenced. The advocates of eugenics believed *largely in heredity*, and urged *the bringing into the world* of children equipped with good brains. A second school believed environment to play the greater part in the development and expression of brain power, and devoted their attention to it. Both schools were of equal importance, and there should be no quarrel between them. Dr. Barker emphasised the benefit of institutional training *for the mentally unfit*, and urged *that psychiatric* clinics should be held frequently and that school teachers should be taught to recognise abnormal children and to segregate them or have them placed in institutions. A campaign for the promotion of mental hygiene in Canada similar to that in the United States would be equally successful.

Scientific Proceedings.

A symposium on Diseases of the Stomach was introduced on June 26th by Dr. ALEXANDER MCPHEDRAN (Toronto), and one on Diseases of the Thyroid by Dr. A. J. OCHSNER (Chicago.)

On June 27th Dr. FRANK BILLINGS (Chicago) gave a clinical lecture in the morning, in the course of which he attacked the methods of handling vaccine in the United States. He said that drug firms manufactured vaccines for nearly every known disease, and even combined cultures of various kinds to make a birdshot vaccine. Dr. Billings believed in vaccines to a great *extent*, but *the manufactured* vaccines were often entirely unsuited for their purpose and likely to have serious effects on the patients.

Dr. JOHN B. MURPHY (Chicago) also held a surgical clinic in the afternoon.

St. John, New Brunswick, was chosen as the next place of meeting, and Dr. Murray Maclaren, of that city, was elected President for next year.

London, Ontario.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(Continued from p. 177.)

XVII.—MANCHESTER: OPPOSITION TO THE ACT; THE POOLING SYSTEM.

FOR a long time Manchester has *been an active centre for* the organisation of medical men to resist hospital abuse and the evils arising from club practice. Over and over again in the editorial columns of this paper, and through the letters of local correspondents, this has been made clear. In Manchester was founded the Medical Guild, whose activities are surely well known to readers of THE LANCET. When the new constitution of the British Medical Association came into being many smaller bodies like the Medical Guild were to a great extent absorbed, their principal workers becoming officers of the Association. In this way, for practical and local purposes a joint committee of the Manchester and Salford divisions of the British Medical Association, consisting of 25 members, became representative, more or less, of the locality. There are four divisions of the Association in Manchester and one in Salford, and each elected five members on the joint committee. This committee became the executive of the organised forces of the medical profession. There is no special resolution or statute confirming any powers which this committee may require or act upon, but by the force of circumstances its vote became influential if not authoritative. The joint committee came into existence before the question of compulsory insurance was before the public. The object then in view was a proposal to appoint whole-time midwifery surgeons for the purpose of attending on the poor. The joint committee combated this project and helped the city council to establish a tariff for such work. The attending surgeons under this tariff were to be paid according to work done and the appointment of whole-time officers was avoided. The tariff for such payments was to be based on the total earnings of the family, who were free to select their own medical attendant. It will be seen that the principle established in regard to midwifery cases among the poor was quite opposed to the contract system and to the capitation fees that form the basis upon which the administration of medical benefits under the National Insurance Act is founded. By reason of their previous experience the majority of the Manchester and Salford practitioners were quite disposed to resist the *National Insurance* Bill as *soon* as it appeared on the *tapis*, and circulars were sent round as late as December, 1912, calling upon all local practitioners not to accept service under a measure with such provisions. At the same time, if the cardinal points brought forward by the British Medical Association had been granted, there would have been no opposition to the Act on the part of the practitioner. Of these points the *establishing of a wage* limit was considered in Manchester to be by far and away the most important. The general and correct impression that the Act meant an extension of club practice prevailed, and resistance was threatened largely on the score of the old and great grievance against the Friendly and other Societies that they accepted as members persons who could well afford *to pay medical fees*. Much bitterness was displayed over the question of a wage limit, and the proposal to limit medical benefits to the £2 a week income was twice brought forward at the instance of influential Manchester men. On each occasion it was *defeated*, but *it is important* to *note* that there was a good minority in its favour. In this respect Manchester differs from the majority of other places, for, curiously enough in my opinion, the proposal to establish a wage limit was little discussed in many localities where opposition to the measure was keen. In Manchester I found the opinion prevailed that there was no other solution than that of establishing the income limit if the profession were to work the Act with pleasure.

Abuses continued under the Pooling System.

It was the *Salford practitioners* who first formed a scheme for working the Act without applying the contract system. Manchester promptly agreed that they would also adopt the Salford scheme, and an official came from London to inquire into an *interesting* and serious position. The result of this inquiry was that consent was given on behalf of the Government to the local scheme, and thus what is known as the pooling system came into existence. The payment was to be for attendance under the supervision of the Local Medical Committee, and "doctors on the list" took the place of panel doctors. The pooling scheme was adopted on Jan. 5th, 1913. This system, while it has brought into existence special grievances of its own, has not done away in any notable manner with objections to the Act where it is worked in the usual way. The trouble about contracting out still remains. The new rule in this respect means that the medical attendant goes on the panel for the limited number of patients who are defined as having contracted out, and that the patient is liable for the balance of his account. Again, we have to note at Manchester the same grievance as elsewhere—namely, that wealthy men insist on insuring their grown-up sons and daughters on the pretext that they are employed persons earning less than £160 a year. According to one of the local practitioners who has done much to organise the profession, at least a quarter of the persons at Manchester who are now insured under the Act were paying medical fees before the Act came into force. He told me of a panel chemist who had made up prescriptions under the Act for three insured persons each belonging to families earning in the aggregate more than £700 a year, though the earnings of no one member might be over £160 per annum. "The fact that many persons who used to pay fees are now insured means that many practitioners who were doing honourable work are now degraded to contract work," remarked another well-known practitioner. "They feel they are driven into a corner, that they must live and must earn their living according to the ways and means given them." I derived the general impression that if a wage limit were imposed on patients and the number of insured persons inscribed on the lists of the panel doctors limited, the capitation system could be accepted in Manchester and the whole difficulty of working the Act removed.

Details of Application of the Pooling System.

The pooling system is probably well enough known to readers of THE LANCET not to need lengthy explanation. Under it insured persons do not inscribe their names on the list of a panel doctor, but send when illness occurs for any practitioner whose name is on the list. The insured are at liberty to change their medical attendant as often as they choose. The practitioner on his side sends in the bill to the Insurance Committee. The fees claimed must be according to the tariff agreed upon—namely, 2*s.* if the patient calls on the doctor, and 2*s.* 6*d.* if the doctor calls on the patient. Special visits—namely, those paid the same day in response to a call received after 10 A.M.—3*s.* 6*d.*, and night visits 5*s.* Surgical operations requiring local anæsthesia (other than incision of abscess), 10*s.* 6*d.* Abortions and miscarriages are to be treated at the ordinary rates; administration of general anæsthetics, £1 1*s.*; setting of fracture or reduction of dislocation, 10*s.* 6*d.*; and sanatorium benefit report, Med. 2, 5*s.*; ordinary fees for succeeding visits or consultations. At these rates, however, it soon became evident that the 7*s.* contributed yearly by every insured person would not suffice to pay the bills sent in. Yet this tariff is below that paid before the Act by a large proportion of the persons who are now under the Act. As there is not money enough to go round, a system had to be devised as a basis for cutting down the bills sent in. Therefore a case average was calculated, and if attendances in any one case exceed the average some explanation is required, or the sum claimed is reduced to the average.

Financial Results of the Pooling System.

As the Act came into operation during the worst part of the year, the amount available for the first six weeks was equal to only 12*s.* 6*d.* for every £1 charged. At Manchester up to March 31st, 1913, there had been 247,799 attendances at the house or surgery of the "doctors on the list," and the latter had paid 68,685 visits, 1351 special visits, and 498 night visits. Then they undertook 426 operations, for which a fee of 10*s.* 6*d.* is allowed; had anæsthetics administered 20 times, and attended to 45 fractures or dislocations. The total charges for all this work were £33,994 14*s.* 6*d.*, and this covers the period from Jan. 15th to March 31st, 1913. The accounts are made up separately by the Insurance Committee for each practitioner, and the latter is charged 5*s.* annually to cover the working expenses. The Insurance Committee is not paid for this control work, but the clerks are familiar with it and it does not take up much of their time. Every doctor on the list has to send in his day book sheets. Their calculations and additions are so often wrong that they must all be carefully checked. The same accounts are submitted to the Local Medical Committee and the latter, acting on the average cost of each case, reduced the charges made by the medical practitioners from £33,994 to £31,477, and of this latter sum £20,929 have been paid on account. Thus the doctors on the list have received about two-thirds of what they claimed; but this is only a payment on account. Each practitioner is credited with the full amount, though during the year only payments on account will be made. When the total amount of the pool at the end of the year is ascertained, the balance remaining in the pool will be divided *pro rata.* The payments effected by insured persons vary constantly. Some die, some go away, and others simply refuse to pay. In the same manner, the incidence of sickness changes according to the season and the weather, not to mention occasional epidemics. If in the worst part of the year the doctors obtained 12*s.* 6*d.* in the £, the yearly average is likely to be much above that figure. On the first published list there were 309 practitioners working the Act; since then there have been a few additions and a few withdrawals. The second list published at the end of May, 1913, shows that for the second quarter 284 practitioners accepted service, a net reduction of 25. The explanation given is that many of the latter reside outside Manchester but having a few patients in Manchester they put their names down presuming that it might be of some advantage to them. Experience, however, has shown them it was not worth while doing so. While these practitioners have not had enough work to induce them to continue service, others have had too much to do. The accounts sent in show that some practitioners have treated from 400 to 500 different patients in one month. Some of these practitioners have assistants though the names of their assistants do not appear on the list. One or two practitioners have treated even more than 500 different persons in the course of a single month. As the average number of different persons treated by any one practitioner in a month varies from 100 to 200, it will be easily understood that the figures given above are taken as evidence of a very serious abuse. The total number of different persons treated was 24,660 in January, 39,593 in February, and 40,250 in March.

Further Results of the Pooling System.

The Manchester Medical Committee, in a circular dealing with the earliest of the figures given above, points out that the daily average of cases was 1451 in January and 1414 in February; and as this is practically no change, it disposes of the idea that there was a considerable rush in the early days of the medical benefit. The circular further urges that the figures strongly support the assertions made by the profession as to the incidence of disease, and show that Mr. Masterman was too optimistic when dealing with the amount of sickness to be anticipated. The average cost of each patient is estimated at 5*s.* 4*d.* in January and 6*s.* 9*d.* in February. "Each account above these averages was scrutinised twice by two different pairs of members of the Subcommittee and reduced either to the average or an allowance made when satisfactory explanations were given for the excess by the practitioner. The accounts above the average, for which no explanations were forthcoming, were then reduced to a general average. These accounts, the Medical Committee in their circular just quoted, show "how much more accurate was the profession's estimate of 8*s.* 6*d.* as the minimum amount *per capita* on which the scheme could efficiently be worked than the estimate of 6*s.* 6*d.* of the Chancellor of the Exchequer. If the 8*s.* 6*d.* had been granted it is probable that, for work on the lines of ordinary private practice, approximately 20*s.* in the £ would have been paid."

Actually the number of persons insured at Manchester amounts to 254,000, and after much toil the distribution of benefits among those who fall ill is working much better. There are less delay and fewer complaints. At the Insurance Committee no serious complaints as to unsatisfactory attendance or neglect on the part of medical men have been received. Such slight complaints as have been made were so trivial that not one of them was of sufficient importance to bring it before the notice of the medical superintendent. This, of course, is one of the advantages of the pooling system. As the medical practitioner is never certain of keeping his patient he has to show him every attention; and the oftener the patient comes or requests a visit the better. But under the capitation system it is just the reverse. Some indelicate practitioners, I am assured, have been encouraging their patients to call often; but they will find themselves in an awkward position if, at Manchester as at Salford, the pool is abolished and the capitation system established. The people who have been taught to call often will have to unlearn the lesson given and some pretext must be found for telling them not to call so frequently.

(To be continued.)

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Midwives Act.

THE official cards of the Birmingham union used by certified midwives for the purpose of obtaining the assistance of a medical man in a case of emergency have in practice led to difficulties. The guardians have now withdrawn them and they will not in future be used. It is recognised that there may be some cases among persons not entitled to maternity benefit under the Insurance Act in which a medical practitioner cannot obtain his fees. In such cases when a doctor is called in by a certified midwife the guardians will pay a reasonable fee subject to their being satisfied (*a*) that maternity benefit is not payable in the case; (*b*) that the medical practitioner has made reasonable efforts to secure payment; and (*c*) that the head of the family is too poor to pay the fee.

Birmingham and Midland Hospital for Women.

Birmingham was the first authority to make puerperal fever a notifiable disease. A further step has now been taken in the opening of a special ward for these cases at the Women's Hospital at Sparkhill. Two years ago, under an arrangement with the city council, two beds were reserved for puerperal fever cases, but this number was soon increased to seven. These proved inadequate, and a new building has been erected costing £6000. This sum has been given by friends of the hospital, with the exception of £600 still required. The city has contributed nothing to the capital expenditure, but agrees to give three-fifths of the annual cost of maintenance. The new ward is isolated and self-contained, and will accommodate 25 patients. It has a sheltered south verandah with six beds for open-air treatment.

July 22nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Appointments at the University of Edinburgh.

THE Edinburgh University Court on July 14th elected Charles Glover Barkla, M.A., D.Sc., F.R.S., Wheatstone professor of physics in King's College, London, to be professor of natural philosophy in the University of Edinburgh, in succession to the late Professor MacGregor. Dr. James Ritchie, superintendent of the laboratory of the Royal College of Physicians, Edinburgh, was appointed to the chair of bacteriology recently instituted in the University.

The University and the Royal Infirmary.

An agreement between the University Court and the board of managers of the Royal Infirmary establishing a close and intimate relationship between the University and the Royal Infirmary in respect of the work of the pathological department, and also regarding clinical arrangements in medicine, [illegible] sidered at the same court [illegible] ringing the provisions of [illegible] next October. An application was also granted on behalf of the teachers for the medical education of women in Edinburgh for recognition for the next academical year, and the appointments of University assistants and lecturers were made for the same period.

Assistant Medical Officer (Tuberculosis Officer) for Edinburgh.

At a joint meeting of the sanatorium subcommittee of the Edinburgh Insurance Committee and a subcommittee of the public health committee of the town council it was unanimously agreed to recommend the appointment of Dr. John Guy as assistant medical officer of health for the town and also to act as tuberculosis officer. The salary is £500 per annum, and there were three applications for the post. For the last six months Dr. Guy has been acting as tuberculosis officer for the county of Gloucester and expert adviser to the County Insurance Committee there.

Honour to Sir Charles Bedford.

The University of St. Andrews has recently conferred the degree of Doctor of Laws (LL.D.), *honoris causâ*, on Lieutenant-Colonel Sir Charles H. Bedford, D.Sc., M.D. Edin., I.M.S. (retired), in recognition of his researches and administrative work in India, more especially relating to excise and customs' questions. Sir Charles Bedford retired from the Indian Medical Service, after 22 years' service, in 1911, and was knighted the same year.

July 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Delegates' Meeting.

A MEETING of delegates representative of the medical profession of Ireland was held at the Royal College of Surgeons on July 17th, Dr. P. J. MacNamara, of Kilmallock, in the chair. The meeting was well attended, and though an unnecessary amount of temper appeared at times, a great [illegible] through. In the first place, [illegible] was discussed. The agenda [illegible] the new executive committee [illegible] the old conjoint committee, but should be strengthened by the addition of direct representatives of each insurance area. The principle of this suggestion was adopted, but an important modification was made. Instead of the entire body of the Irish Committee of the British Medical Association, some 15 or more in number, with an equal number from the Irish Medical Association, being included in the executive committee, the representation of these bodies is cut down to one member each. At first sight this has merely the effect of making the committee less unwieldy, but it has also the important result that it deprives the executive of what has been up to the present its only certain income. Hitherto the British Medical Association has contributed £200 a year and the Irish Medical Association £100 a year to the conjoint committee, and this has constituted its entire income, except £90 received as a subscription of 10*s.* per head from 180 medical practitioners. Unless, therefore, members of the profession are willing to contribute directly for the support of the professional organisation, the step taken may prove a very serious one. The meeting authorised the new committee to levy a subscription of £1 per head on all medical men in Ireland. The new committee is to be called the Irish Medical Committee, and the constitution will be as follows:—(1) One member elected by the medical men of each insurance area; (2) three members elected each by Belfast, Cork, and Dublin, and one by Londonderry, Waterford, Limerick, and Galway; (3) one representative of each of the following bodies—the University of Dublin Medical School, University College Medical School, the Queen's University Medical School, the Royal College of Physicians, the Royal College of Surgeons, the Apothecaries' Hall, the Medical School of University College, Cork, and of Galway, the Royal Academy of Medicine, the Ulster Medical Society, the Cork Medical Society, and the Belfast Medical Guild; (4) two representatives appointed by the medical women of Ireland. This committee is to replace the former conjoint committee of the Irish Medical and the British Medical Associations, and no representatives are to be elected by any branch of the Irish Medical or of the British Medical Associations in Ireland. The first meeting of this new committee—of which Mr. M. R. J. Hayes has been appointed secretary—is to be held on Wednesday, August 27th. Resolutions were also passed at the meeting of medical delegates held in Dublin on July 17th, censuring the Insurance Commissioners for appointing "medical advisers" for the purpose of certification, and in consequence of this the meeting called on medical men to withdraw from the panels as soon as they can legally do so; and further, reiterated the determination of the medical delegates not to accept service under the National Insurance Act so long as the Chancellor of the Exchequer ignores the demands of the medical profession. As the Report of the Medical Benefit Inquiry Committee was not yet forthcoming, the meeting could not enter into any detailed discussion of the subject. It therefore contented itself with passing a resolution pledging the profession, in the event of the benefit being extended to Ireland, not to accept lower terms than have been granted in England.

Medical Benefits in Ireland.

The Departmental Committee appointed to consider the question of the extension of medical benefits to Ireland met again in London on July 18th for the consideration of an interim report, as they had been unable previously to come to a decision. By a majority of 6 to 3, it is said, they agreed to an interim report recommending the extension of medical benefits to the six county boroughs—Dublin, Belfast, Limerick, Cork, Waterford, and Londonderry—while a minority of three dissented. It is doubtful whether any legislation can take place this year, because before the reports, Majority and Minority, can be laid on the table of the House of Commons the session will be practically over. What specially concerns the medical profession is the terms on which the majority of this Departmental Committee recommend the extension of these benefits. Report says that they are the same as in England, but with this difference that for the identical money equivalent given in England the dependents are to be included in Ireland.

Sanatorium Benefit in Ireland.

At the meeting of delegates recorded above a warm debate took place on the present position of sanatorium benefit in Ireland. The recent action of the Insurance Commissioners in interfering with the arrangements made between the profession and the Insurance Committees as regards the reporting of cases of tuberculosis has given rise to intense irritation on the part of the profession. It was suggested at the delegates' meeting that medical men throughout the country should forthwith refuse to assist in the administration of the sanatorium benefit. Cooler counsels, however, prevailed, and a resolution was carried warning the Insurance Commissioners that if they persisted in appointing "medical advisers" for the purpose of signing preliminary reports on cases of tuberculosis, the profession would find itself forced to withdraw from assisting in working the benefit.

Maternity Benefit in Ireland.

In relation to the maternity benefit a resolution was passed at the same meeting calling attention to the fact that many recipients of the benefit are attended only by unqualified midwives. This practice is fairly common in rural parts of Ireland, and appears to be permitted to go on unchecked both by the societies and the Insurance Commissioners, though it seems to be contrary to the terms of the Act.

The Non-Existent Insurance Committees.

The provisional Insurance Committees established in July, 1913, hold office up to July 15th, 1914. The representatives of the local authorities and the nominees of the Insurance Commissioners continue in office for another year, but arrangements were to have been made by which the societies were to elect their representatives at the beginning of the present month, so that the new committees might have been ready to enter into office without delay. Up to the present, however, the results of these elections have not been made known, and as a consequence there are no Insurance Committees in existence. The administration of the sanatorium benefit is suspended by the failure of the Insurance Commissioners to secure that the elections should be completed in proper time.

Derry Insurance Committee.

An account of what occurred at a meeting of the County Derry Insurance Committee, held in Coleraine on July 11th, shows the utter mess into which the National Insurance Act in Ireland has sunk. First, a letter was read from the Insurance Commissioners refusing to sanction the committee's proposal to appoint Dr. T. A. Adams, of Garvagh, as temporary medical adviser for County Derry at a salary of £200 *per annum* and travelling expenses. To this the committee replied asking the Commissioners to approve of a salary of £10 per month in the meantime. A further communication was then read from the Insurance Commissioners refusing to sanction the committee's proposal to pay the secretary £110 per annum, upon which he resigned, as he could not do such heavy work at the small remuneration allowed. Dr. Adams said if the Commissioners did not sanction his salary by the date of next meeting he would also resign his position. The chairman, having strongly appealed to the committee—who were about to do so—not to resign, a resolution was passed urgently requesting the Insurance Commissioners to reconsider their decision as to the clerk's salary, as the resignation of this most efficient officer would involve the committee in great inconvenience and loss.

July 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medical Students and the Three Years Law.

AFTER the first year of military service, medical, pharmaceutical, and veterinary students will be permitted to demand the suspension (*sursis*) of their service to finish their studies. They will then be again called out to finish their two years as assistant surgeons, pharmacists, or veterinarians' assistants. The suspension will be granted only up to the completed age of 27 years. Those who have obtained 12 inscriptions and successfully undergo at the end of their first year of service the examination for assistant medical officer or pharmacist may be nominated to finish their last two years of service as assistant medical officers or pharmacists. The same will obtain under like conditions for those possessed of a civil veterinary diploma or who are admitted in their fourth year.

The Responsibility of the State in Case of Plague.

The Conseil d'État has ordered the owner company of the packet *La Gironde* to pay an indemnity of 4000 francs to Mme. Peytral, who, after undergoing quarantine and five days' complete isolation at Majunga, Madagascar, was refused access to the packet in spite of a clean bill of health from the sanitary service, on the ground that the crew of the boat which brought her to the ship had not been in quarantine. Mme. Peytral was consequently subjected to the loss of a month and demanded indemnity, which, after being refused by the Government of the colony, has been granted to her by the Conseil d'État. The judgment laid it down that the fact of having entrusted the transport of passengers to native sailors from an infected port without preliminary disinfection constitutes a fault.

A Donation to the Montpellier Faculty of Medicine.

Professor Grasset has given to the Faculty of Medicine of Montpellier the Broquette-Gonin Prize of 10,000 francs awarded to him this year by the Académie Française. The professorial assembly of the Faculty has decided that the interest of this sum shall be devoted to the foundation of a travelling scholarship to be awarded every five years to the most meritorious French medical student at Montpellier.

A Medical Deputy.

Dr. Dumont has been elected deputy from Issoudun (Indre).

The Employment of Children and Women in Shops.

The following decree has been published in the *Journal Officiel:* Art. 1. It is forbidden to employ at the outdoor stalls of shops boys under 14 years or girls under 16 years. Boys between 14 and 18, as well as girls between 16 and 18, may not be employed for more than six hours daily. Their employment must be by turns of duty of two hours at the most, separated by at least one-hour intervals. The employment of young persons of 18 years or under and of women at any age in the outside stalls referred to is absolutely forbidden after 8 P.M. or when the temperature is below zero C. In cold weather sufficient heating must be furnished for employees in the interior of the establishment. Art. 2. The heads of such establishments must be prepared to produce, whenever required by the inspectors, the birth certificate of every person under 18 years of age whom they employ.

The Genital Glands and the Dental System.

At the Academy of Sciences M. R. Robinson, of Paris, recently made a communication on the perfect preservation of the teeth in seven male donkeys aged between 10 and 14 years. These animals, which had been used in the experiments of Professor Lannelongue, were insusceptible of sexual excitement. Their food was hay. On the other hand, a young cryptorchid *griffon*, a very salacious beast, upon which the author had made a necropsy, had lost all its teeth when quite young. Toothache is said to occur in young masturbators, and it appears that true eunuchs have fine teeth, and the author concludes that a physiological relation exists between the genital glands and the dental system. The old belief of the effect of gestation upon the teeth may thus be true. As a result of his clinical observations, M. Robinson is satisfied that in diabetes and tabes it is through the intermediary of the genital glands that the teeth become worn, carious, or simply fall out. But, he asks, does there exist a reciprocal effect of the dental system on the physiology of the genital glands? In two cases the author has noted that the removal or the rapid loss of many teeth together induces gradual atrophy of the testicles and complete impotence. In the case therefore of one who loses in an unusual manner many teeth the genital organs should, he thinks, be examined, and, if necessary, the ovaries in case of chronic salpingitis, or the testicles in tumours or testicular tuberculosis should be removed. Further, rational opotherapy should remedy premature decay of the teeth. The communication was suggestive rather than convincing.

July 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

An Organisation for the Prevention of Diseases Associated with War.

Professor Kraus, who has been invited to go to Buenos Aires, and Dr. Winter have worked out an organisation for the prevention of diseases associated with war, and the result of their labours may be of the utmost importance in all future wars. In the recent operations of the Balkan nations against Turkey, when the Bulgarian troops suffered from outbreaks of typhoid fever and cholera, Professor Kraus was invited by the King of Bulgaria to help against these insidious enemies in the camp, and in consequence of the experiences obtained under the conditions of actual warfare, the following scheme of essential requisites has been proposed: (1) A staff of experienced bacteriologists ready for emergency work; (2) portable laboratories for use in connexion with epidemics; and (3) classes for training nurses in the care of patients suffering from diseases associated with war. It is suggested that the organisation should be under the authority of the Board of Health in time of peace. It can render help in outbreaks of epidemics, in view of which contingency 12 large portable laboratories have been provided, each packed in four large trunks. They are fitted out with everything necessary for investigations involving microscopical or cultural work, and biological research such as agglutination tests. The required quantities of antidysenteric serum, and of vaccines against typhoid fever and cholera are always ready at hand. In case of war, each of these portable laboratories will be under the direction of a professor of bacteriology or hygiene. The equipment of the laboratories is sufficient for the examination and sterilisation of water, for making bacteriological examinations of healthy persons and patients, for the performance of prophylactic vaccination, for the disinfection of dwellings and clothing, and for some other purposes. Attempts will be made to take international action for the prevention of diseases associated with war, and it is very favourable for the object in view that the German Red Cross Society has promised to second this Austrian idea of extending the range of international voluntary help in war time so as to include the prevention or limitation of diseases associated with war. The matter will be discussed at the next general meeting of the various national Red Cross societies in Geneva.

New Expeditions of the Austro-Hungarian Red Cross Society to the Balkan War.

Owing to the outbreak of the second war in the Balkan [illegible] the funds of the Army Medical Corps of the belligerents seem to be exhausted. One result of the experiences obtained in the former expeditions is the fact that a sufficient number of trained nurses has been asked to accompany the medical officers this time. It will be remembered that, especially in Bulgaria, the volunteer female nurses were complete failures, and that at that time the foreign medical men complained seriously that the ladies of Sofia who offered their services as nurses were in every way unfitted for the duties which they undertook. The present expeditions have been distributed equally between Belgrade and Sofia, both belligerents being greatly in want of such assistance.

Total Alopecia Caused by Mental Shock.

An interesting case of total loss of hair in close connexion with a mental shock was shown by Dr. Nobel at a recent meeting of the Vienna Medical Society. The patient was a tramcar driver who had sustained a severe fright whilst attempting to avert a threatened collision of his car with an automobile. He jumped from his platform just a moment before the crash occurred, and thus sustained no physical injury, but he lost the power of speech for some minutes. That was the only immediate result of the fright, but a few days later he noticed that the hair of his head and beard came off in handfuls. Within a short time his eyebrows and eyelashes fell out, and in the next few weeks he developed a complete alopecia all over the body, so that with the exception of a few hairs in the axillæ and on the pubes his skin was everywhere glossy, smooth, and free from any hair at all. The colour of the skin, as well as the structure of the follicles, did not appear to have suffered. An explanation of this undoubtedly trophoneurotic condition could be found in the fact that the arterioles of the skin had been temporarily blocked by an intense vaso-constrictor impulse (spasm) due to cortical irritation (fright). Dr. Nobel said that this temporary interruption of the circulation might cause disintegration of the matrix-cells, and thus promote the falling out of the hair shafts

July 21st.

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

Dominion Medical Council.

THE Dominion Medical Council has recently held a meeting in Ottawa, when its organisation was completed and by-laws and regulations were adopted for the requisite approval of the Federal Government. The first Dominion examinations will be held in Montreal on Oct. 7th. The Dominion register opened at Ottawa on July 1st, Confederation Day, and also the date of the founding of the Canadian Medical Association 46 years ago, an organisation which through the keen efforts of Dr. T. G. Roddick has eventually carried Dominion registration to a successful completion. The first annual meeting of the Dominion Council will be held in Ottawa on June 16th, 1914. By this Act the provincial councils are not abolished, but a medical graduate who now passes the Dominion Council may without further examination practise anywhere in Canada upon registering with the provincial body. Physicians of good standing in any province who for ten years prior to October, 1912, practised in any one province may now be registered in the Dominion Council without examination on the payment of a registration fee of $100. The Dominion examination is not necessary for any graduate who locates in any province and intends to stay there, but he cannot practise in any other province unless he takes its provincial examination, or the Dominion examination, or has been ten years in practice prior to October, 1912. The Hon. Dr. Roche, Minister of the Interior, who convened the first meeting, was made an honorary member. The father of the measure, Dr. Roddick, is the president, and will sign the register first. Dr. R. W. Powell, 100, Cooper-street, Ottawa, is the registrar.

Opening of New Toronto General Hospital.

On June 19th, as was briefly announced in a previous communication, the Lieutenant-Governor of Ontario, Sir John Gibson, declared the new Toronto General Hospital open for the reception of patients. His honour expressed the regret of the board of trustees and the citizens at the absence of H.R.H. the Duke of Connaught, who, it was expected, would have performed this duty. Mr. J. W. Flavelle, the chairman of the board of trustees, presided, and gave a historical account of the old Toronto General Hospital since the year 1818. He referred to the contributions which had made the new institution possible, and described the new building, grounds, and equipment. The out-patient building, which cost $100,000, was presented by Mr. Cawthra Mulock, of Toronto; a similar sum was given by the Massey estate; Mr. J. C. Eaton gave $300,000 for the surgical building, and quite recently an additional contribution of $50,000; an anonymous donor gave $300,000; the Misses Shields, Toronto, $140,000 for the emergency hospital; the Ontario Government, on behalf of the University of Toronto, for the pathological building, $300,000; the city of Toronto $200,000, and within a few days of the opening a further grant of $210,000. In addition there were many large and numerous small contributions from Toronto citizens. $300,000 still remain to be collected to complete the institution. The hospital buildings surround a square of land 9 acres in extent, with lawns, trees, shrubs, flowers, and recreation-grounds. They occupy an entire block almost in the heart of the city and close to the University medical buildings, thus facilitating clinical work for students and teachers alike. There will be accommodation for 670 patients, and, as far as size, newness, and modern equipment go, there is probably one only in America to compare with it—namely, the new hospital in Cincinnati, U.S.A., which will accommodate 600. It easily leads in Canada, the Royal Victoria in Montreal accommodating about 200 and the Montreal General 400, about the same as the old Toronto General. Situated on the corner of College- and University-avenues, its administration building occupies the central position on College street. In it, besides the executive offices, there are 36 beds on the main floor for semi-public patients. On the second are public wards, with 44 beds for eye, ear, nose, and throat cases. On the third floor 40 beds for gynæcological cases, whilst the fourth is fitted up comfortably for interne quarters, but will be used for private patients until the building for those is completed in the fall. The east wing of the main building is the surgical building. Six wards in this accommodate 120 patients, and on each of the three floors are modern thoroughly equipped operating suites. The medical wing, to the west of the administration building, has a similar number of wards for as many patients as the surgical wing. At some distance behind the surgical wing is the nurses' residence, with private gardens and tennis-courts adjoining. The obstetrical building will not be completed until October. The power-house, situated at the south-eastern corner of the lot, provides artificial light, heat, and power. The construction is of steel, Milton pressed brick, faced with freestone, and it is estimated that 22,000,000 bricks were used.

A Royal Commission in Ontario with a Medical Reference.

In his address receiving the new Toronto General Hospital on behalf of the people of Toronto and Province of Ontario, Sir James Whitney, the Provincial Prime Minister, announced that his Government had decided to appoint a Royal Commission on Medical Education and the Practice of Medicine in Ontario, the object being to acquire information whereon to base legislation for a new Ontario Medical Act. This Commission will define the term medicine, and will deal with all plans or means of alleviating or curing human defects, disorders, diseases, or wounds, so as to control all in the interests of the people of the province. Investigations will be made of the College of Physicians and Surgeons, the Ontario Medical Council, the medical departments of the universities, osteopathy, massage, dental colleges, nurses' training schools, and opticians and their training, as well as of the practice of any branch of medicine by Christian Scientists and other sects. A report of such a comprehensive character should be full of interest.

Cigarette Smoking and Drinking in Canada.

According to a report just issued by the Inland Revenue Department of Canada, 975,325,501 cigarettes were consumed in Canada in 1912, or nearly 200,000,000 more than in 1911. The consumption of tobacco and alcohol has increased during the year as follows: spirits, 1·112 gallons *per capita*, compared with 1·030 in 1911; beer, 7·005 gallons, as against 6·598 gallons; wine, 0·131, as against 0·114; and tobacco, 3·818 lb., against 3·679 lb., the latter figures including the cigarettes. The increased consumption of liquor is said to be largely due to the immigration, which is also responsible for the increase in crime. Since 1901 there has been an increase in population of 34 per cent., but the court convictions for drunkenness have increased by 225 per cent. From 12,727 in 1901 the convictions increased to 41,279 in 1911. The nationality is not specified, but of 12,600 convictions for serious offences one-half of the offenders were born outside of Canada, while of the people of Canada only one-fifth are foreign born. Wholesale importation of immigrants from continental Europe brings troubles of its own.

Appointments and Resignations.

Dr. Helen MacMurchy, Toronto, who for several years has taken an active interest in infant mortality, the care of the feeble-minded, and other public health questions, has been appointed assistant inspector of hospitals and public charities in Ontario, with special supervision over the feeble-minded. Dr. N. E. MacKay has resigned the professorship of surgery in Dalhousie University, Halifax, N.S. Dr. Walter Bapty, Victoria, B.C., has been appointed inspector of hospitals for British Columbia. Dr. J. Algernon Temple, Toronto, formerly dean of Trinity Medical College, and for many years a teacher of obstetrics and gynæcology, has received the degree of LL.D. from his *alma mater*, McGill University.

July 14th.

Obituary.

WILLIAM HENRY LANGLEY, C.M.G., F.R.C.S. IREL.,

PRINCIPAL MEDICAL OFFICER OF SOUTHERN NIGERIA.

THE Honourable William Henry Langley was principal medical officer of Southern Nigeria from 1911, and had been previously deputy principal medical officer in Northern Nigeria and principal medical officer in the Gold Coast Colony. He was only 44 years of age at the time of his death. He had enjoyed good health up to the middle of last April, but about that date he first showed signs of impaired vigour, and died from heart failure on June 11th.

Mr. Langley received his medical education at the Carmichael College of Medicine, Dublin, and at the Royal College of Surgeons in Ireland. In 1893 he became a Licentiate of the Royal Colleges of Physicians and Surgeons in Ireland, taking the Fellowship of the College of Surgeons in 1902 His official career was distinguished. He served in the Borgu operations of 1897–98, for which he received a medal and two clasps; in the Kontagora expedition of 1900, for his services in which he was mentioned in despatches and received a medal and clasp; and with the Kano Sokoto expedition of 1903, his services in which were rewarded with special mention, a clasp, and the Companionship of the Order of St. Michael and St. George. In an official communication to the Secretary of State for the Colonies, Sir Frederick Lugard, Governor of Southern Nigeria, wrote under date June 12th: "Dr. Langley's death is a very great loss indeed to Nigeria. I had intended to recommend him to you for the proposed appointment of director of medical department under the scheme of amalgamation. There is no officer in the West African Medical Service who has the personal knowledge of both Protectorates possessed by Dr. Langley. I have known him intimately since I recommended him for appointment, and I feel his death keenly as a personal loss "

A tribute to Mr Langley's personal character appears in the Southern Nigerian Government Gazette Extraordinary, dated June 12th, which says "Apart from the great services he has rendered to West Africa as Deputy Principal Medical Officer in Northern Nigeria as Principal Medical Officer in the Colony of the Gold Coast, and recently as Principal Medical Officer of Southern Nigeria, he can well be said to have endeared himself by charm of manner and quality of mind to all with whom he came in contact, whether officials or non officials, throughout West Africa "

He was buried with full military honours, the Deputy Governor of Southern Nigeria, in the absence in England of Sir Frederick Lugard, being present, with members of the executive and legislative councils

CABANIS DOMINIC FRANCOIS DE MELLO, L R C P, L R C S EDIN, L F P S GLASG,

KNIGHT COMMANDER OF THE MILITARY ORDER OF CONCEPTION

MANY friends in India and Portugal will hear with regret of the death of Commander Cabanis de Mello, which took place somewhat suddenly at Bombay on June 12th Commander de Mello was educated at Bombay and at Glasgow, where he took the triple Scottish qualification in 1888 At Glasgow, where he resided for some time, he showed promise of a successful career, which he afterwards fulfilled On returning to India, where his life was mostly spent his keen interest in advanced methods of treatment led to his early and active advocacy of the methods of Professor Haffkine, and in the face of much opposition he succeeded in raising a sufficient sum of money to start plague inoculation in Poona Professor Haffkine went to Poona at his request, and de Mello was himself the first to be inoculated, and kept a careful diary of the temperature and sensations which resulted from the inoculation He was especially interested in the prevention and treatment of rabies, and was a contributor to both English and Portuguese medical journals on this and other subjects of interest to Europeans resident in Portuguese India He always showed that he was abreast of scientific thought, and was also popular among his patients for he was considerate and gentle in manner and spared no pains for their welfare For his services to the Portuguese settlement of Goa, in Bombay, Dom Carlos of Portugal created him a Knight Commander of the Military Order of Conception

He married in 1889 Annabel Macmillan, the eldest daughter of the late Thomas Macmillan, who survives him

THE LATE PROFESSOR GOTCH —We are deferring until next week the full obituary notice of the late Professor Gotch, in deference to the wishes of the distinguished physiologist who has accepted our invitation to write it

DEATHS OF EMINENT FOREIGN MEDICAL MEN —The deaths of the following eminent foreign medical men are announced —Dr Franz Samuely extraordinary professor of medicine in the University of Freiburg aged 33 —Dr Paul Coyne, formerly professor of pathological anatomy in Bordeaux and corresponding member of the Paris Academy of Medicine —Dr Severin Lachapelle, professor of children s diseases in Laval University, Montreal —Dr James Nelson Martin formerly professor of midwifery and gynæcology in Ann Arbor University, Michigan

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DONATIONS AND BEQUESTS —Among the legacies left by the late Mr J S Fry are the following £25 000 to Bristol General Hospital, £5000 to Jubilee Convalescent Home Bristol, £5000 to Bristol Royal Infirmary, £2000 to Bristol Hospital for Sick Children and Women, £2000 to Bristol Voluntary Lock Hospital £1000 to Bristol Dispensary, and £2000 to Bristol Eye Hospital —The late Mr George John Fenwick, of Bournemouth has left £50 000 to the Royal Victoria Infirmary, Newcastle to be invested as a permanent endowment fund, and a legacy of £1000 for the general purposes of the infirmary.

THE
BRITISH MEDICAL ASSOCIATION.

EIGHTY-FIRST ANNUAL MEETING AT BRIGHTON.

THE eighty first annual meeting of the British Medical Association began on July 23rd at Brighton under the presidency of Dr W Ainslie Hollis, consulting physician to the Sussex County Hospital The meeting proper was preceded as usual by the annual meeting of the Representative Body, which lasted from July 18th to July 24th On Tuesday, July 22nd, the annual general meeting of the Association was held in the Hove Town hall, and the out going President, Sir James Barr, handed over the badge of office to his successor, Dr Ainslie Hollis, who delivered that evening the presidential address in the Dome

The British Medical Association last met at Brighton 27 years ago, and since that time the linked boroughs of Brighton and Hove and the Association have both grown considerably in size The honorary local secretary of the 1886 meeting was Mr T Jenner Verrall, then in practice at Brighton, and now the popular chairman of the Representative Body, whose re election to that office for the ensuing year was announced on July 18th The honorary local secretary of the present meeting, which is in progress as we go to press is Dr L A Parry An attractive social programme has been arranged by the local executive, and in spite of the close proximity of the International Medical Congress in London the success of the Brighton meeting is already assured

Wednesday, Thursday, and Friday mornings were, as usual, set aside for the meetings of the scientific sections, which have been reduced this year in number from 20 to 16. Anatomy, Physiology, and Anæsthetics have been dropped, while Otology has been joined up again with Laryngology and Rhinology, and Bacteriology with Pathology Climatology and Balneology, on the other hand, have been honoured with a joint section to themselves in which the principal and apposite discussions are on Sea Bathing and on the International Aspects of British Health Resorts The Addresses in Medicine and Surgery which were delivered respectively on Wednesday and Thursday afternoons in the Pavilion by Professor G R Murray, of Manchester, and Sir Berkeley Moynihan, of Leeds, are printed in full in the present issue of THE LANCET The popular lecture will be delivered this evening (Friday July 25th) in the Dome by Mr Edmund J Spitta, of Brighton Reports of the proceedings of the scientific sections will appear in our next issue

At the annual general meeting on Tuesday afternoon, after a vote of thanks to the retiring president had been passed, it was officially announced that the Association would meet in 1914 at Aberdeen, and the President-Elect, Sir Alexander Ogston, K C V O, was introduced Sir Alexander Ogston is consulting surgeon to the Aberdeen Royal Infirmary and Emeritus Regius Professor of Surgery in the University of Aberdeen On Tuesday evening, before the president's address, Dr J A MacDonald, the chairman of Council, who has done admirable work for the Association, was presented with the gold medal of merit Sir James Barr, in introducing Dr Ainslie Hollis to the presidential chair, said that he relinquished his office with reluctance It had been a fighting year, and when there was any fighting he liked to be in the middle of it He still adhered to his opinion, expressed 12 months ago, that the National Insurance Act was a fraud upon the public. The administration of the Act was costing seven or eight million pounds a year, while the medical profession, which did all the work, was only getting five or six millions. Dr. Hollis thanked the Association for the honour it had paid him in electing him President. The vote of thanks to the outgoing President was proposed by Mr. E. B. Turner and seconded by Mr. D. F. Todd.

On Wednesday the annual church service was held in the afternoon at St. Peter's Church. On the same morning a Roman Catholic service was held at 9 A.M. at St. John Baptist's Church. On Wednesday, Thursday, and Friday a large number of social entertainments were provided by the municipalities of Brighton and Hove and by individual hosts and hostesses. These will be referred to in our next issue. By permission of the Council of the Association the summer meeting of the Irish Medical Schools and Graduates Association was held on Wednesday under the chairmanship of the President, Dr. William Douglas, and on Thursday a breakfast was given by the National Temperance League, with Dr. Ainslie Hollis in the chair.

The annual exhibition of surgical instruments, drugs, special foods, and sanitary appliances was held in the Corn Exchange, which immediately adjoins the Dome. Some *éclat* was given to the proceedings on Tuesday morning by the fact of the mayor attending to declare formally the opening of the exhibition. The mayor was accompanied by the President, Dr. Hollis.

The building was admirably adapted for the purpose, and afforded the exhibitors a full opportunity of displaying their exhibits to the best advantage. There was ample room, and although the exhibition compared with recent years was, in fact, a small one it was interesting and well attended. It was generally admitted that the proximity of the exhibition announced to be held in connexion with the International Medical Congress militated against the exhibition at Brighton.

The exhibits at Brighton, however, proved of very general interest, judging from the quite good attendance of the visitors. The proximity of the building to the Dome, in which were being held meetings of the first importance to the medical profession, was one reason of this satisfactory attendance.

Surgical instruments and appliances appeared to claim as much attention as anything else, several of the leading makers being represented, their exhibits affording a really excellent review of surgical advances. Aseptic furniture, sterilising tanks, and anæsthetic apparatus formed an interesting section in this division. Beyond some apparatus used in radiant heat and light treatment, electrotherapeutic appliances found practically no exponents. X ray and high-frequency apparatus and treatment by iontophoresic methods form generally an attraction to the visitors at this annual exhibition, but in regard to this department they were on this occasion sent empty away. On the other hand, there was an interesting demonstration of drugs, and more particularly of the animal substances upon the use of which organotherapy is founded. Preparations containing hormones afforded an example, while treatment by vaccines, sera, and so forth, was well illustrated in a series of preparations evidencing strict scientific attention. Fine chemicals and elegant pharmaceutical combinations, and ingenious forms for administration, made up an instructive section of the exhibits. Amongst special foods the favourites appeared to be those containing milk substances. Lastly, there was quite a library of medical science represented at the stalls of several well-known medical publishers.

THE PRESIDENTIAL ADDRESS.

THE MEDICAL HISTORY OF BRIGHTON.

Dr. Ainslie Hollis, in his interesting Presidential Address before the British Medical Association at Brighton, following up the example set at Carlisle in 1896 by Dr. Henry Barnes, and pursued last year at Liverpool by Dr. John Elliott, took his audience on what may be called a "personally conducted tour" through the medical history of Brighton and its neighbourhood down the ages. After a mere reference to the Pilt Down skull, which suggests that these southern acres were peopled hundreds of thousands of years ago, Dr. Hollis took his starting point in comparatively modern times—the Neolithic era. In view of the known cleverness of the stone age surgeon, he suggested the probability of many of the "pygmy flints" found on the Weald, with their sharp edges and needle-like points, having been used for trepanning, blooding, tattooing, or shaving. He called attention to two relics of the bronze age now in the local museum, as closely resembling a surgical director and scraper respectively.

Recalling Pliny's assertion [1] that the Roman people got on for 600 years without doctors, Dr. Hollis stated his inability to find evidences of the practice of medicine in that area during the Roman occupation or for centuries subsequently. In the Norman period the practice of medicine was mainly in the hands of the monks. He described the "fermorie," or infirmary, of the rich Cluniac Priory of St. Pancras at Lewes with its beds arranged against the walls for the reception of the sick and infirm, as well as for those who had been bled; and in illustration of the state of hygiene in the fourteenth century he described its monastic latrine, consisting of apertures in the wall over an open drain outside, into which the dejecta fell and were carried off by a culvert into the river. The surgery of the age he described as consisting mainly of "blooding," and contrasted it depreciatively with the extensive operations and well-healed fractures, extant evidences of which testify to the daring and success of the surgeons of the Neolithic age. The dissolution of the monasteries under Henry VIII., like all sweeping changes in the social life of a people, probably entailed much misery on the sick and impotent p There was a dearth of qualified medical men—men with an Oxford or Cambridge degree or holding the Bishop's licence—and charlatans abounded. Many statutory privileges, such as exemption from jury service and bearing arms, improved social position, and the right to sue illegal practitioners, were accorded to the medical profession, but remained without effect in increasing its numbers and quality; and the refusal of the "companie and felowship of surgeons of London" to look after the sick poor gratuitously led to an Act in 1542 reducing those privileges and legalising unqualified practice to a limited degree. In 1580 Brighthelmston had one medical man, Dr. Mathew, whose terms for confinements were at Portslade and Rottingdean, 5*s.*; at Blatchington, 3*s.* 6*d.*; and anywhere in the town of Brighthelmston, 2*s.* 6*d.* In an unpublished letter to King Henry VIII., now in the British Museum, that monarch is advised not to come to Brighton as plague was then raging there, but Dr. Hollis was unable to find confirmatory evidence of this alleged visitation. A reference to Charles II.'s one night stay in Brighton gives occasion for a quotation from that able surgeon, Richard Wiseman, who, when referring to that monarch's reputation for curing the king's evil by touching, states: "I myself have been a frequent eye witness of many hundreds of cures performed by His Majesty's Touch alone: without any assistance of chirurgery: and those many of them, such as had tired out the endeavours of able chirurgeons before they came thither." Manual training for children was insisted on by the magistrates under an Order in Council at Whitehall, June 11th, 1630. The Brighton divisional area in the seventeenth century returned two medical men to Parliament: Dr. Nicholas Barbon for Bramber in 1690 and 1695 and Dr. William Quartermain for Shoreham in 1666. Among the noteworthy events of the eighteenth century may be mentioned the publication in 1749 in the *Lewes Journal* of [illegible] by Dr. Tobias George [illegible] Brighton as a health [illegible] Russel, physician to St. Thomas's Hospital, who advocated the drinking of sea water in struma, constipation, renal calculus, "scirrhus," and other diseases. His contemporary, Dr. Speed, however, attributed Russel's results to "the prudent use of other select medicines" rather than to sea water. But in any event Dr. Russel's popularity apparently inaugurated the now long reign of Brighton as the queen of watering places. The first guide book to Brighton, entitled "A Short History of Brighthelmston," was written by Dr. Anthony Relhan, who was one of the first scientifically to analyse the "bills of mortality," and who demonstrated conclusively that Brighton was then—the middle of the eighteenth century—one of the healthiest towns in England. A quarrel with the King's and Queen's College of Physicians of Dublin, about 1758, of which he was president, due to Relhan's having prescribed a "quack medicine"—to wit, James's powder—caused him to leave Ireland and settle in London, whence he came to Brighton. The use of sea-water and of sea bathing in various disorders was again stimulated by a pamphlet written by Dr. Awsiter in 1768. Dr. Hollis gave some interesting details about the prevalence of rabies in this area during the latter half of the eighteenth century. It was not confined to dogs, for kine and swine, as well as both children and adults, were affected. Some curious cases of alleged "maternal impression" were cited. The usefulness of this once firmly held doctrine is demonstrated in a case in which a white woman who gave birth to a black child was enabled to dispel her spouse's misgivings by the convincing explanation that during her pregnancy she had had an overpowering longing for charcoal.

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[1] Nat. Hist., xxix., c. 5.

By this time surgery had advanced considerably, for trephining and abdominal operations were undertaken by the local doctors, but bleeding was there, as everywhere, the *pièce de résistance* of therapy. Several outbreaks of small-pox occurred in the latter part of the eighteenth century, either despite, or because of, the introduction of inoculation into England by Lady Mary Wortley Montagu in 1721. It was customary for doctors to receive paying patients into their houses to be "conducted through the distemper." A Ditchling surgeon advertised in the *Lewes Journal* that "he receives patients for the operation for 4 guineas ...... if they find their own wine, tea, and sugar, fee 3½ guineas." Ague was at that time endemic in certain districts of Sussex, the mudflats and lagoons at the mouths of the small tidal rivers and bournes along the coast being ideal breeding places for gnats and mosquitoes. The death-rates were very high, the proportion of burials to christenings reaching in some cases almost 2 to 1. This was largely attributable to the insanitary and poverty-stricken social conditions under which the bulk of the people lived. At the commencement of the nineteenth century Brighton became the happy hunting ground of medical charlatans. Mr. Nathan Smith, inventor, patentee, and operator of an air-pump for extracting gout—perhaps an empirical form of Bier's hyperæmia—lived in Artillery-place in 1739. Mr. Teddy Palmer, a Brighton blacksmith, relieved the Regent of a toothache at a Christmas party in four minutes by his magic fumigating process. Then, as now, the public seemed to consider it only natural for the medical profession to give their valuable services to the poor for nothing, for among other instances Dr. Bankhead's offer to attend the poor gratuitously was accepted by the Brighton churchwardens in 1803. "Even then," said Dr. Hollis, "free medical advice and attendance were no longer regarded by the laity as a charitable subvention, but rather as a legal right and a popular necessity. Since those days the purview of wealthy benevolence has not materially changed. The same exoteric estimate of the value of a doctor's work still seemingly permeates recent legislative enactments." The longevity of Sussex labourers, notwithstanding their insanitary environment and coarse food, is mentioned, as also the high death-rate among children and the fatality of infectious diseases. Coming to the nineteenth century Dr. Hollis directed his attention to the introduction of vaccination and to its enthusiastic advocate, Dr. Matthew John Tierney, [illegible] Ordinary [illegible] that tim[illegible] George IV. and King William IV. Dr. Badcock, who confirmed Ceely's well-known experiments, was also a Brighton practitioner, while Thomas Addison and William Addison both lived there. Dr. Hollis concluded his interesting address with a reference to the late Dr. William Withers Moore, who was president of the Association at its last meeting in Brighton in 1886.

THE ANNUAL REPRESENTATIVE MEETING.

The annual meeting of the Representative Body began on Friday morning, July 18th, under the chairmanship of Mr. T. JENNER VERRALL. The Representative meeting on this occasion had among its members two medical women, Dr. Mary Bell, of Norwich, and Dr. Mina Dobbie, of Hampstead. The State Sickness Insurance Committee has already for some time past had the assistance of Dr. Constance Long and Dr. Mary Ivens; but we believe that until now no woman practitioner has belonged to the Representative Body of the Association. During the morning session, which was mainly devoted to the internal affairs of the Association, the Mayor of Hove attended for a short time and offered a welcome to the members on behalf of the corporation and citizens. Proposals for economy in reporting Representative Meetings were made by the treasurer, Dr. Edwin Rayner, and carried. With regard to the suggested formation of a new company to replace the existing constitution, the chairman of the organisation committee, Mr. F. C. Larkin, proposed that the Association should not at present proceed further with the matter, and this was agreed to. The question of the reorganisation of the Association was discussed at some length, and various schemes for the reform of the present constitution, notably that of the Metropolitan Counties Branch Council, were brought forward and debated. Proposals to reduce the size of the Representative Body were considered, but none were found acceptable. The general feeling of the members was that they should constitute a deliberative assembly and not merely a meeting of delegates tied by the instructions of their constituencies.

On Saturday t[illegible] twice disturbed [illegible] The first matte[illegible] sent to Mr. Lloyd George and Mr. Masterman and others to attend a discussion on July 25th, in the section of medical sociology, on Hospitals in Relation to the State, the Public, and the Medical Profession. The Representative Meeting by a very large majority [illegible] ing its disapproval of "any act [illegible] condone the methods used by t[illegible] the Insurance Act into operation."

The second matter was Mr. Godfrey Locker-Lampson's proposed amendment to the National Insurance Act Amending Bill. This was brought to the notice of the meeting by Dr. J. A. MACDONALD, chairman of the Council, in a brief but impressive speech. The amendment tabled in the House of Commons on July 15th by the Unionist Member for Salisbury runs as follows:—

> Where in any town or district an Approved Society proves to the [illegible] the principal Act.

Dr. MACDONALD characterised this as the most dangerous move which had as yet been made against the interests of the medical profession. It was an insidious attempt to throw medical men back into the hands of the Friendly Societies, and it demanded the immediate and serious attention of the meeting. Mr. E. B. TURNER, deputy chairman of Representative Meetings, thereupon proposed a resolution of protest in an emphatic speech in which he declared that it was now evident that both political parties would sacrifice the medical profession for the sake of votes.

The motion was seconded by Mr. E. H. WILLOCK and carried unanimously in the following form:—

> [illegible]

It was decided that copies of this resolution should be sent to the Prime Minister, to the leaders of the Opposition and of the Irish and Labour Parties, to every member of the Grand Committee, and to the press agencies. Proceeding with the ordinary business the Representative Body passed resolutions indicating the necessity for amendment of the National Insurance Act in the following respects:—

1. That the proviso to Clause 2 (2) of the Amending Bill, limiting the right of persons over 65 (at the time of entering into Insurance) to medical benefit after 70 to those who had paid over 50 weekly contributions be deleted.
2. That persons holding certificates of exemption under Section 4 (4) shall be required to make [illegible] r medical benefit.
3. To authorise a charge [illegible] night calls.
4. That an insured per[illegible] to require medical attendance from any medical practitioner other than the practitioner on whose list he is, as, for instance, in respect of the administration of a general anæsthetic or assistance at an operation.
5. That an insured person shall not be entitled to medical attendance or treatment for any disease or disablement caused by his own misconduct other than venereal diseases.
6. That the term "income from all sources" shall include sums received by way of allowance, annuity, or otherwise, as, for instance, by the son of a wealthy father.
7. That representatives of the medical profession be included in the committee of the Seamen's National Insurance Society, and that the proportion shall be one-tenth.
8. That the representation of insured persons on Insurance Committees be two-fifths, in place of three-fifths.

A motion to insist on the exclusion of venereal diseases from medical benefit produced a lively debate, but, as indicated above, this was defeated.

The main topic before the Representative Body on Monday was a proposal, vigorously supported by certain members, inviting the meeting to declare itself favourable to the formation of a union, registered under the Trade Union Acts, of such medical practitioners as might desire to join together in this way for the defence of their interests. As was to be expected, this suggestion of a medical trade union, under the ægis of the British Medical Association, aroused keen opposition, although a number of members supported it with equal zeal. After both sides had been given a full hearing the debate was closured at 6 P.M., and a card vote was demanded and taken. As a result the proposal was defeated by 11,408 votes to 5259. Had the voting been taken by roll call the motion would have been rejected by a rather smaller, though sufficient, majority. The earlier part of the morning session on Monday was given up to other matters in connexion with the Insurance Act and with impending future legislation. The meeting approved an amendment to be proposed to the Amending Bill to govern the conditions under which insured persons should be allowed to make their own arrangements. The meeting then considered a report of the Council on the provision of medical attendance and treatment of persons to whom the Insurance Act does not at present apply, and a discussion took place, during which the following principles were laid down: (1) The payment for uninsured persons should be equivalent to that paid in respect of insured persons; (2) the income limit should be £104 per annum; (3) there should be free choice of doctor by patient and of patient by doctor. It was, however, recognised that the conditions existing in certain areas might render it necessary to sanction certain variations in these requirements. The meeting also expressed disapproval of setting up any contract system for attendance on midwifery cases. It was further resolved that the medical representation on District Insurance Committees ought not to be less than the proportion on County Insurance Committees.

On Tuesday the debate on the organisation of the Association was continued. Monday's rejection of the trade union proposal was endorsed by a further vote, and it was decided to set up a standing committee of the Association, to be called the Insurance Act Committee, which should replace the State Sickness Insurance Committee. With regard to the proposed special fund for the organisation and protection of the profession, it was agreed that no decisive action should be taken by the Representative Body until the scheme has been again submitted to the Divisions, and that a special Representative Meeting should be called to consider the matter. In view of the probable future extension of the scope of the National Insurance Act, the meeting resolved that it was desirable that the British Medical Association should be ready with its policy as to what a National Health Insurance Act should be, not merely from the point of view of the interests of the profession, but also from that of public health and the advancement of medical science. A proposal that in future the entire Council of the Association (except colonial members) should be elected by the Representative Body was lost. The question of finance was anxiously considered, and it was resolved that the time had arrived when the annual subscription to the Association should be raised to £2 2*s.* per annum for all except foreign and colonial members. The method of determining and declaring the policy of the Association upon matters of moment was discussed at some length, and resolutions were passed which will necessitate alterations in the regulations of the Association. Much business, chiefly of a formal kind, was got through before the members adjourned at 6.30 P.M. The Representative Meeting concluded on Wednesday, after a short session.

Medical News.

ANÆSTHETICS AT THE INTERNATIONAL MEDICAL CONGRESS.—An extremely interesting programme has been arranged for discussions and papers dealing with general anæsthesia, local analgesia, and spinal anæsthesia at the International Medical Congress. This will comprise such recent work as intratracheal and intravenous and colonic etherisation, anoci-association, hedonal anæsthesia, post-anæsthetic toxæmias, and many subjects which are at present prominently before anæsthetists. Many distinguished "rapporteurs" have promised to open the discussions, and the executive of the subsection are most anxious that British and Irish anæsthetists shall add their quota to the subsection's work. Patriotism as well as a desire to keep abreast of the science and art which they study and practise will no doubt prove incentives to all anæsthetists to join the Congress and help those who have been at great pains to make the subsection a success. A special museum for apparatus for producing anæsthesia is arranged, and it is hoped that all those who have apparatus whose merit or novelty is likely to prove interesting will send it for exhibition. The President is Dr. Dudley W. Buxton, 53, New Cavendish-street, London, W., and the honorary secretaries in London (Dr. Herbert Scharlieb, 49, Wimpole-street, W.) and in Edinburgh (Dr. J. W. Struthers, 2, Chester-street, Edinburgh) will supply programmes and further information.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination held on July 15th–19th, the following candidates were approved in the subjects specified below:—

Chemistry an Physics.—Robert Geoffrey Addenbrooke, Birmingham University; Gerald Arthur Augustine Bradnack, Guy's Hospital; Charles Herbert Carroll, London Hospital; Nai Chena, Middlesex Hospital; John Rudolph Cox, Guy's Hospital; Allan Robert Crane, London Hospital; Gerald Hinds Duffield, King Edward VI.'s Grammar School, Stourbridge; Frederick Knowles Escritt and Wyndham [illegible] y's Hospital; Evelyn Hope Johnson, [illegible] alter Harry Maudling, Charing Cross I[illegible] den, London Hospit[illegible] nc Rampling, St. Thomas's Hospital; [illegible] don School of Medicine for Women; Alan Harvey Richardson, Guy Rooker, and Henry Laurence Slaughter, St. Thomas's Hospital; Robert Masters Somerset, Sheffield University; Stuart Walter Southwood, Birkbeck College; John Alcwyn Stephens, Huddersfield Technical College; Thomas Neville Strange, Brighton Municipal Technical College; Abbass H[illegible] Hospital; John Norman Terry, St. Thoma[illegible] Thomas, Swansea Technical Colleg[illegible] St. Bartholomew's Hospital; and [illegible] Hospital.

Chemistry.—Harold Charles Clifford-Smith, Charing Cross Hospital; Horace Silva Drabble, Sheffield University; Robert Erskine-Gray, South-Western Polytechnic; Frederick Hunter Hyland, Leeds University; Mohammed Ibrahim, Middlesex Hospital; Lillian Lowenstein, London School of Medicine for Women; Ralph Kenneth Marwood, University College; Khurshedjee Jamsedjee Rustomjee, Liverpool University; and Ahmad Hussein Samy, St. Bartholomew's Hospital.

Physics.—William Blair Spence Andrew, Royal Dental Hospital; Jane Crawford, Birkbeck College; Bryan Osmond Dewes, Polytechnic Institute; Noel Edward Fasken, Guy's Hospital; Edward Francis Gillett, St. Mary's Hospital; Hussein Amin Hathout, Cairo; Christopher Hugh Macklin, Felsted School; Hugh Morris-Jones, St. Mungo's College, Glasgow; Percival Randall, University College, Cardiff; Douglas Rhys Thomas, St. Bartholomew's Hospital; Ian Murray Thomson, Guy's Hospital; and Graham Arthur Osborne White, University College, Cardiff.

Biology.—Robert Geoffrey Addenbrooke, [illegible] University; Norman John Ainsworth, Birkbeck [illegible] Apperly, South-Western Polytechnic; [illegible] University; Oswald Bastable, Leeds [illegible] St. George's Hospital and King's Col[illegible] and Francis William Crook, Guy's I[illegible] Gillett, St. Mary's Hospital; Philip Green and Frank [illegible]

Cardiff.

UNIVERSITY OF SHEFFIELD —The following are the results of examinations held recently :—

UNIVERSITY OF MANCHESTER.—At the examination for the Diploma in Public Health held recently the following candidates were successful —

Pollok Donald, Annie C. Greenep, A W Laing, A R M McIlraith, Marion Stocks, H G. Trayer, A G Wilkinson, and G G Wray

UNIVERSITY OF BRISTOL —At examinations held recently the following candidates were successful :—

THE DEGREE OF M D

Reginald Samuel Sherrard Statham (honours).

FINAL EXAMINATION FOR THE DEGREES OF M B AND CH B

Part II. (completing examination) —Per Emil Christofferson

DIPLOMA IN PUBLIC HEALTH

mat

SECOND EXAMINATION FOR THE DEGREE OF B D S

William Harold Greet and Robert Hugh Turner

PSYCHO-MEDICAL SOCIETY —A meeting of this society will be held at the rooms of the Medical Society of London, 11, Chandos street, London, W , on Tuesday, August 5th, at 8 P M. Dr C. G Jung, of Zurich, will read a paper entitled "Psycho-analysis" Members of the medical profession are cordially invited to be present The honorary secretary is Mr. Douglas Bryan, Spa House, Leicester.

LISTER MEMORIAL FUND —Contributions recently made to the Lord Lister Memorial Fund include the following :—

	£	s	d
[illegible]	146	13	0
[illegible]	120	3	6
[illegible]	50	0	0
[illegible]	3	6	6
[illegible]	15	18	1
[illegible]	10	0	0
[illegible]	10	0	0
[illegible]	21	1	3
[illegible]	20	0	0
[illegible]	19	15	0
[illegible]	4	0	0
[illegible]	4	7	9
[illegible]	1	1	0
[illegible]	3	3	0
[illegible] Society ...	10	10	0
[illegible]	9	0	0
[illegible]	2	2	0
[illegible]	2	9	6
[illegible]	3	3	0
[illegible]	7	0	0
[illegible]	1	7	6
[illegible]	10	10	0
[illegible]	10	10	0
[illegible]	5	5	0
[illegible]	2	2	0
[illegible]	5	5	0
[illegible]	3	7	6
[illegible]	3	3	0
Tulane University	$20		
University of Nancy	Fr 100		
Société Vaudoise de Médecine, Lausanne	Fr 100		

Donations may be sent to the honorary treasurers of the Fund at the offices of the Royal Society, Burlington House, W.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON) —Demonstrations in clinical medicine will be given throughout the months of August and September, beginning on Monday, August 18th, at 2 15 P.M., in the clinical theatre at the hospital. *Members of the* medical profession will be admitted on presentation of their private cards, and communications may be made to Dr. William Wright, Dean of the College

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

National Insurance Act (1911) Amendment Bill

STANDING Committee C of the House of Commons on Tuesday, *July 22nd, began the consideration in detail* of the National Insurance Act (1911) Amendment Bill Mr J W WILSON was in the chair

Clause 1 lays down that there should be contributed out of moneys provided by Parliament towards the cost, expenses, and purposes of Part I of the National Insurance Act such additional sums as Parliament might from time to time determine

Mr CASSEL moved an amendment to the effect that this provision of additional money should be limited to sums required for medical benefit He did not think that the Government should have a free hand in regard to additional money for the general purposes of the Act, but should have to come to Parliament with a new Bill when this was required

Mr MASTERMAN (Secretary to the Treasury) resisted the amendment and said that the Government should have general powers to propose further expenditure on all heads without Parliament having the opportunity to reopen the whole of the Insurance Act.

After some discussion,

Mr LLOYD GEORGE *(Chancellor of the Exchequer) urged that there* should be the same freedom to bring forward notes for national insurance as there was now for education

The amendment was withdrawn and Clause 1 was agreed to

Clause 2 abolishes the reduction of benefits in certain cases in regard to persons over the ages of 50 and 65

Mr GODFREY LOCKER LAMPSON moved an amendment to the effect that full benefits should be paid to young persons under 21 as well as to persons over 50 as proposed This could be given by extending the sinking fund period for additional benefits

Mr MASTERMAN resisted the amendment He said that neither the Government nor the Friendly Societies wished to increase the sinking fund by one and a half years They did not want to do anything to encourage excessive sickness claims, as would be the case if youths earning 7*s* or 8*s* were permitted to draw sickness benefit of 10*s* These people were already getting a full return for their own and their employers contributions

Mr BOOTH remarked that Friendly Societies were only in favour of the extension of benefits to young people if the money for this purpose was granted by Parliament

Mr WORTHINGTON EVANS insisted that Friendly Societies were not against the abolition of reduction of benefits in principle, but the question was, Where was the money to come from ? He pointed out that the Government were now extending the sinking fund at the expense of the young men

Mr G ROBERTS considered that the case for the extension of the full benefit to the old men was much more urgent than its extension to young persons under 21

The amendment was defeated by *40* votes *to 19*

Mr GOULDING moved an amendment to omit the following provision —

"That a person who is of the age of 65 or upwards at the time of entering into insurance shall not be entitled to medical benefit after he attains the age of 70 unless the number of weekly contributions paid by or in respect of him exceeds 50

The saving under this provision would, he said, only be a few thousands Was it worth while to incur all the trouble under it for so small a sum ?

Mr MACNAMARA, on behalf of the Government, declined to accept the amendment He pointed out that full medical benefit for life would be open under it to a person who had paid one contribution. He did not think that would be fair to the societies He was, however, prepared to accept 26 instead of 50

The amendment was withdrawn A proposal to substitute 26 instead of 50 was agreed to

The Committee struck out the provision that Clause 2 should come into operation at such date not later than Jan 11th, 1914, as the Insurance Commissioners might appoint

Mr. MASTERMAN promised to bring up a new clause which should set out the dates at which the extra benefits under the Bill should come into operation, and it would provide that the sickness benefit should start as from Oct 13th of this year.

Insurance Act; how the expenditure would be borne; whether such complaints would be made direct to the Insurance Commissioners by the insured person or through the Insurance Committees; whether the names of the persons to form the committees of inquiry had yet been decided upon; and, if so, whether he would submit a list of them.—Mr. Wedgwood Benn (on behalf of Mr. Masterman) replied: The cost of the arrangements referred to will be provided for in the votes of the separate Commissions, under the head of "special enquiries and services," for which estimates amounting to £5250 for the four Commissions have been laid before Parliament. If any representations are made to the Commissioners by an Insurance Committee or a Local Medical Committee that the continuance of a practitioner on the panel would be prejudicial to the efficiency of the medical service of insured persons the Commissioners must, and if any similar representations are made by any other body or any persons they may hold an inquiry. The Inquiry Committee will not, as a rule, investigate complaints made by insured persons until such complaints have been investigated by the Medical Service Subcommittee of the Insurance Committee. For the purpose of each inquiry an inquiry committee, composed of two practitioners and one barrister or solicitor in actual practice, is constituted by the Commissioners. The English Commissioners have appointed Mr. J. Fischer Williams, Dr. H. W. Langley Browne, and Dr. C. H. Milburn to act as the first inquiry committee.

Final Lists of Insured Persons.

Mr. Fred Hall (Dulwich) asked the Secretary to the Treasury how many doctors had been placed upon the panels of medical men under the National Insurance Act in England, and how many of them had been furnished with a register of insured persons for whom they were responsible in order that they might check applicants for medical treatment.—Mr. Wedgwood Benn (for Mr. Masterman) answered: The number of medical practitioners on the different panels is about 18,000. I am unable at present to say how many of these doctors have received final lists of the insured persons for whose treatment they will be responsible. Such final lists cannot be supplied until the process of allocation of insured persons who have not chosen their doctor has been completed. In the meantime the doctors have no difficulty in checking applications for treatment from insured persons who have already been accepted by them.

Compulsory Isolation of Tuberculous Cases.

Mr. Astor asked the President of the Local Government Board whether any local authorities, and, if so, which, had taken steps to secure the compulsory isolation of tuberculous cases which were in a state of high infectivity; and, if so, whether he would state what action had been taken.—Mr. Burns wrote in reply: In the session of 1911 the corporation of St. Helens obtained by means of a local Act certain special powers in regard to the compulsory isolation of persons suffering from pulmonary tuberculosis. Similar powers were refused in the case of Sheffield in the session of 1912 and in the cases of Derby and Southport in the present session. Similar powers have been obtained in the present session by Liverpool, East Ham, and Bradford. The medical officer of health of St. Helens considers that the powers have proved useful, but he reports that during 1912 in only one case was it necessary to make an application to the court for an order authorising compulsory removal.

Wednesday, July 23rd.

The Medical Profession and Malingering.

Sir Henry Craik asked the Secretary to the Treasury whether he could specify t[illegible] the medical p[illegible]; whether he w[illegible] mittee repudiated the charge; and whether he would state upon what evidence the charge was founded.—Mr. Wedgwood Benn (on behalf of Mr. Masterman) answered: My right honourable friend did not refer to the Manchester Local Medical Committee, nor did he say that any Manchester Committee had made a charge against the medical profession in [illegible] as informed that the doct[illegible] had themselves proposed [illegible] er of themselves and of re[illegible] s any complaints on this s[illegible] mber would consult that Committee he should be very glad to hear the result. With regard to the last part of the question, he could only repeat that a disproportionate number of complaints had been received from societies with branches in Lancashire. My right honourable friend may add as an example that in an investigation made by one Approved Society as to the number of districts in which doctors appear to be giving certificates where the member is not really incapacitated, while Scotland is 5 per cent. and South-East England 5 per cent., East Lancashire rises to 57 per cent. and West Lancashire to 55 per cent. The whole subject will form a matter of inquiry before the Departmental Committee to be appointed.

BOOKS, ETC., RECEIVED.

Baillière, Tindall, and Cox, London.

A System of Veterinary Medicine. By Various Writers. Edited by E. Wallis Hoare, F.R.C.V.S., Lecturer in Veterinary Hygiene, University College, Cork; late Examiner in Anatomy, Royal College of Veterinary Surgeons. Vol. I., Microbial Diseases. Price 21*s*. (Complete in 2 volumes, price 42*s*.)

Forster Groom and Co., Limited, 15, Charing Cross, London, S.W.

Hints for Regimental Medical Officers of the Territorial Force. By Captain M. F. Grant, R.A.M.C., Adjutant, R.A.M.C. School of Instruction, 1st London Division, T.F. Price 1*s*. 6*d*.

Herder, B., 68, Great Russell-street, London, W.C.

Quaestiones Theologiae Medico-Pastoralis. Vol. II. Augustinus Gemelli, O.M., Doctor Medicinae et Chirurgiae, Professor ad. honorarius Hystologiae, Lector Medicinae Pastoralis. De Scrupulis Psychopathologiae Specimen in Usum Confessariorum. Editio prima quam ex Italico Latinum Sermonem vertit doct. Cæsar Badii in Seminario Faesulano professor. Price, paper, 4*s*. 3*d*. net; cloth, 5*s*. 6*d*. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Addison, Kate, M.B., B.S. Lond., has been appointed Clinical Assistant to the Skin Department at the Royal Free Hospital.

Boyers, Hedley, has been appointed Assistant House Surgeon at the West Bromwich and District Hospital.

Cates, Joseph, M.D. Lond., D.P.H. Cantab., has been appointed Medical Officer of Health of the County Borough of St. Helens.

Geddes, A. Campbell, M.B., B.S. Edin., has been appointed to the Robert Reford Chair of Anatomy at McGill University.

Hunt, Matilda, M.D. Lond., has been appointed Clinical Assistant and Assistant to the Gynæcological Department at the Royal Free Hospital.

Kann, Miss A. L., M.B., B.S. Lond., has been appointed Anæsthetist to the New Hospital for Women, and Clinical Assistant and Assistant to the Throat, Nose, and Ear Department at the Royal Free Hospital.

Mandrana, K. C., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Italian Hospital.

Moss, Helen I., M.B., B.S. Lond., has been appointed Assistant Anæsthetist to the Royal Free Hospital.

Pernet, George, M.D. Paris, M.R.C.S., L.R.C.P. Lond., has been re-appointed Dermatologist to the West London Hospital and Lecturer on Dermatology to the West London Post-graduate College.

Radcliffe, Frank, M.D. Vict., has been appointed Honorary Acting Surgeon to the Oldham Royal Infirmary.

Richardson, A., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Surgical Tutor in connexion with the Medical School at the University of Leeds and Surgical Registrar to the General Infirmary.

Thompson, Charles J., L.M.S.S.A. Lond., has been reappointed Clinical and Surgical Assistant to the Birmingham and Midland Hospital for Skin and Urinary Diseases.

Venables-Williams, W. M., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Colwyn Bay District of the county of Carnarvon.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Banbury, Horton Infirmary.—House Surgeon. Salary £100 *per* annum, with board and residence.

Belgrave Hospital for Children, Clapham-road, S.W.—Resident Medical Officer and Junior Resident Medical Officer, both for six months. Salary at rate of £60 and £40 per annum respectively, with board, residence, &c.

Benenden National Sanatorium, Kent.—Assistant Medical Officer. Salary £120 per annum, with board, residence, and laundry.

Birkenhead Borough Hospital.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

Birmingham and Midland Eye Hospital.—Third House Surgeon. Salary £80 per annum, with residence and board.

Birmingham Union, Selly Oak Infirmary.—Resident Assistant Medical Officer. Salary £160 per annum.

Bootle Borough Hospital.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry. Also Clinical Assistant. Salary £50 per annum.

Bristol Royal Hospital for Sick Children and Women.—Junior Resident Officer. Salary £80 per annum, with board, rooms, and attendance.

Bristol Royal Infirmary.—House Physician. Salary at rate of £100 per annum, with apartments, board, and laundry.

Burnley, Victoria Hospital.—Second House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and washing.

Cambridge, Addenbrooke's Hospital.—House Surgeon and Second House Surgeon, each for six months. Salary in each case £80 per annum, with board, residence, and laundry.

Cancer Hospital, Fulham-road, S.W.—First Assistant to Research Department. Salary £350 per annum.

Canterbury Mental Hospital, Canterbury.—Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, washing, and attendance.

Carlisle Dispensary.—Resident Medical Officer. Salary £150 per annum, with apartments.

Central London Ophthalmic Hospital, Judd-street, W.C.—Bacteriologist. Salary £50 per annum.

Chester General Infirmary.—House Physician. Salary £90 per annum, with residence and maintenance.

Chesterfield and North Derbyshire Hospital.—House Physician. Salary £90 per annum, with board, apartments, and laundry.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Two House Physicians for six months. Salary at rate of £75 per annum, with board, residence, and washing.

Cobham, Schiff Home of Recovery.—Resident Surgical Officer for six months. Salary £100 for the six months, with board, lodging, and washing.

Colchester, Essex County Hospital.—House Physician. Salary £80 per annum, with board, residence, and washing.

Covent[illegible] Hospital, Coventry.—Senior House Su[illegible], and Junior House Surgeon. Salary of [illegible] and of two latter £90 per annum each, with residence, board, laundry, and attendance.

Croydon General Hospital.—Junior House Surgeon for six months. Salary £80 per annum, with board, laundry, and residence.

Denbigh, Denbighshire Infirmary.—House Surgeon. Salary £110 per annum, with board, residence, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon, unmarried. Salary at rate of £75 per annum, with board and laundry.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £65 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Assistant Surgeon to Out-patients.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, washing, and lodging.

ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum, with board, apartments, and washing.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

GATESHEAD DISPENSARY.—Assistant Medical Officer. Salary £200 per annum.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Physician on the Acting Medical Staff. Also Assistant [illegible] rate of £80 per annum, [illegible]

[illegible] use Surgeon. Salary [illegible] eon. Salary £80 per [illegible] washing.

[illegible] Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.

HARROGATE, HEATHERDENE CONVALESCENT HOME.—Honorary Surgeon.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary [illegible] esidence, board, and washing.

[illegible]—Junior Assistant Medical Officer. [illegible] board, apartments, washing, and [illegible]

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary £100 per annum, with board and residence. Also House Physician for six months. Salary 30 guineas.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Vacancy on Honorary Medical Staff. Also Locum Tenens for two months. Salary 4 guineas a week, with board, apartments, laundry, &c.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum and board.

LANARK, COUNTY OF, DISTRICT OF THE UPPER WARD.—Tuberculosis Officer and Assistant Medical Officer of Health. Salary £300 per annum.

LANCASHIRE EDUCATION COMMITTEE.—School Medical Inspector. Salary £250 per annum.

LANCASTER, BOROUGH OF.—Medical Officer of Health. Salary £400 per annum.

[illegible]

washing.

LIVERPOOL, TOWNSHIP OF TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Medical Officer. Salary £125 per annum, [illegible]

board

LONDON HOSPITAL MEDICAL COLLEGE.—Demonstrator of Pharmacology. Salary £200 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Physician for Diseases of the Skin. Also Ear, Nose, and Throat Surgeon. [illegible]

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

[illegible] per annum, [illegible] Physician [illegible] with board, [illegible]—Junior House Surgeon for [illegible], with board and residence.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL NATIONAL MISSION TO DEEP SEA FISHERMEN.—Medical Men [illegible] rd and [illegible] House [illegible] ssistant [illegible] board, [illegible]

[illegible] MEN AND CHILDREN, Plaistow, E.—[illegible] Officer, unmarried, for six months. [illegible] annum, with board, residence, and laundry.

SALISBURY GENERAL INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and lodging.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Assistant House Surgeons, unmarried. Salary £100 and £80 per annum respectively, with board, residence, and laundry.

SHEFFIELD ROYAL INFIRMARY.—Two Resident Medical Officers. Salary £70 per annum, with board and residence.

SHOREDITCH INFIRMARY, Hoxton street, N.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon. Salary £150 per [illegible]

[illegible] annum, with board and apartments.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and attendance.

[illegible] Medical Officer [illegible]

[illegible] l, E.—Senior [illegible] ry at rate of £100 per annum in each case. Also Junior House Physician. Salary at rate of £75 per annum.

WOLVERHAMPTON [illegible] Surgeon.

WORCESTER G [illegible] per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Chipping Norton, in the county of Oxford; and at Beith, in the county of Ayr.

Births, Marriages, and Deaths.

BIRTHS.

CANE.—On July 19th, at Kirkee, near Poona, India, the wife o [illegible] Cane, R.A.M.C., of a son. [illegible]

MARRIAGES.

CHEADLE—REYNOLDS.—On July 17th, at St. Mary Abbot's, [illegible] r Cheadle, M.B., B.S. Lond., of [illegible] Frances, widow of Claude Reynolds, [illegible]

[illegible] at Christ Church, Westminster, [illegible] wner, M.D. Lond., to Daphne [illegible] f Mr. and Mrs. A. Hatton Beebe, of [illegible]

DEATHS.

GOTCH.—On July 15th, at St. Mary Abbot's terrace, Kensington, two days after his 60th birthday, Francis Gotch, M.A., D.Sc., F.R.S., Waynflete Professor of Physiology in the University of Oxford.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH AND HOSPITALS IN CEYLON.

A report on the Ceylon Blue-book of 1911–12 has only now (July) been presented to Parliament through the Colonial Office. Although it gives financial, educational, and railway details up to June 30th, 1912, all the other statistics, including those relating to health and medical matters, deal only with the calendar year 1911. The population on Dec. 31st of that year was estimated at 4,106,254, including 7664 Europeans. The births registered numbered 156,398, being in the proportion of 37·9 per 1000 of the population estimated at the middle of the year. The deaths numbered 143,380, and were equal to a rate of 34·8 per 1000—the second highest rate on record for the last 45 years, the highest (35·1) being in 1906. Compared with the average rates for the 11 years 1898–1908, the birth-rate of 1911 showed a decrease of 0·1 and the death-rate an increase of 6·3 per 1000. The general health of the population during the year was bad. Deaths from enteric fever showed a marked decrease from the previous year, numbering only 651, as against 4619, but this is almost entirely due to an alteration in the method of tabulation, only those cases being now entered as "enteric fever" which are duly certified as such by qualified medical men, while deaths previously reported by village registrars as due to this cause are now classified as due to "ill-defined fever." Under the latter head the number of deaths increased from 16,238 in 1910 to 33,064 in 1911. Deaths registered as due to diarrhœa rose from 13,602 in 1910 to 17,347 in 1911, to dysentery from 2960 to 4743, to phthisis from 3917 to 4286, and to ankylostomiasis from 1592 to 2001. Cholera accounted for 277 deaths, as against 22 in 1910, 242 of these occurring in the coolie camp at Ragama, and being traceable to infection from India. Deaths from small-pox, also traced to infection from India, numbered 89, as against 29 in 1910. There were 38 deaths from hydrophobia. The Ceylon Government gives an annual grant to the Pasteur Institute at Coonoor, and poor persons bitten by rabid animals and unable to meet the expenses of the journey are sent there at the cost of the Government. Concerted action is being taken by the local authorities to stamp out rabies by enforcing the registration of dogs and by the destruction of homeless pariahs.

Measures have been taken for the prevention of malaria by the circulation of leaflets, the free distribution of quinine, and lectures and demonstrations to the public through the offices of the medical department and the headmen. In connexion with the [illegible] Edward VII. Memorial Fund measures are bein[illegible] systematically carried on [illegible] combat the ravages of tubercu[illegible] Vaccin[illegible] throughout the island by a special staff. During the year 161,979 subjects were vaccinated. The percentage of successful primary vaccination cases to total inspected was 90·39, while the percentage of successful revaccination cases was 70 95. Stringent precautions are taken under the auspices of the Plague Committee to prevent the introduction of plague, and the island has hitherto been immune from the ravages of the disease.

New hospitals erected by private munificence at Veyangoda, Negombo, and Moratuwa were opened during the year. There are now 76 Goverment hospitals, in addition to the lunatic and leper asylums, equipped with modern hospital furniture and surgical appliances, the number of beds ranging from 30 to 425. The new out-patients' department of the General Hospital, Colombo, has been completed and is now in working order. In addition to the hospitals there are 418 outdoor Government dispensaries and 279 estate dispensaries supported by the planters, who get their drugs free up to a value of 50 cents per coolie per annum. The lunatic asylum is in Colombo and has 664 inmates. The leper asylum is situated about six miles from Colombo and contains 392 patients. A smaller establishment in the Eastern Province contains 36 patients; a large leper settlement is to be founded there shortly. In association with Government a home for incurables (containing 80 beds) is worked by a committee of officials and representatives of the public. There are no poorhouses in Ceylon. In Colombo and some other towns there are Friend-in-need Societies for the relief of distress, and these are subsidised by Government. In addition to this every Government agent and assistant Government agent has an annual vote for "allowances to paupers."

The Medical College accommodated 151 medical and 81 apothecary students. The full course of training for medical students is five years. A diploma in medicine, surgery, and midwifery (which can be registered in the United Kingdom) is granted to successful students. In association with the College are a bacteriological institute with a small clinic for tropical medicine attached; a laboratory for the Government analyst; an ophthalmic hospital; a lying-in home; a women's hospital; a children's hospital; and special hospitals for the insane, lepers, and infectious diseases.

The staff of the Civil Medical Department has recently been strengthened by the appointment of two itinerating inspecting medical officers, whose principal duties are—(a) inspection of hospitals and dispensaries and of the work of the provincial surgeons generally; (b) inspections of opium depôts; (c) initiation and execution of measures to combat ankylostomiasis, tuberculosis, and malaria; (d) inspection of estates; and (e) special supervision of cholera, small-pox, or other epidemics.

A new Opium Ordinance passed by the Legislative Council relaxes the strictness of certain provisions of a former Ordinance on the same subject. Provincial surgeons are given the power by endorsement on prescriptions to exempt the person in whose name the prescription is made out from the restrictions imposed by the Ordinance. Provision is also made to enable planters out of the range of dispensaries to supply opium in a medicinal form to their coolies in emergencies under proper regulations.

The climate of Ceylon varies considerably in different parts of the island, both as regards temperature and rainfall. In the lower country and coast districts the climate is tropical, and a noticeable feature is the small diurnal variation of both the barometer and thermometer. In the mountainous districts in the interior it resembles that experienced in many parts of Europe, being temperate and equable. The rainfall for the year was below normal on the west side of the island, but above it on the east. Ratnapura again headed the list with 148·77 inches on 224 days; at the other extreme Puttalam had 37·64 inches on 87 days. The mean temperature for the whole year was highest at Mannar, 83·1° F., and lowest at Nuwara Eliya, 59·6°. At the Colombo Observatory and at Kandy the mean temperature was 81·6° and 76·0° respectively. The highest temperature reached was 101·1° on May 21st at Trincomalee. The highest on record is 103·7° at Trincomalee on May 12th, 1890. The mean daily range of temperature—i.e., the mean of the daily differences between the maximum and minimum temperatures—was highest at Budulla, where it was 19·9° and lowest at Galle, 8·4°.

A MODEL AMBULANCE SERVICE.

The ambulance department organised in the early part of 1911 in the city of São Paulo, Brazil, is described in the annual report of the Acting British Consul, Mr. C. W. Miller, who commends it as an example to many of the great European cities. As an illustration of the methods employed, he mentions that at the corners of all main thoroughfares in the city, and also in the suburbs at convenient points, there exist a series of telephones controlled by the constabulary on duty, and in the case of an accident of any description within the limits of the capital the ambulance and doctors are in attendance in less than ten minu[illegible] after its occurrence. There are special rules and regulation[illegible] erning stree[illegible] traffic of every description to ena[illegible] ambulances to proceed on their [illegible] way to the scene of [illegible] without interruption or delay. Each ambulance carries [illegible] alarm signal of an easily distinguishable nature, and [illegible] which can be heard for a great distance. This signal is one which o[illegible] her vehicles may not carry. Heavy penalties are imposed on any who im[illegible]pede the passage of the ambulance. Medical attendance is abundant and competent in this service, and the whole staff of the ambulance cor[illegible] are to be commended for the way in which it is maintained. The city has a population of about 420,000.

THE PREVALENCE OF RED HAIR.

To the Editor of The Lancet.

Sir,—As a Londoner I have been much struck by the relatively large numbers of red-haired children and young people met with in and about London. I have observed this for the last six months or more. There is, in my opinion, an increase in the incidence of red hair. I should like to know if others have noticed this. It is a point that might interest our anthropologists.

I am, Sir, yours faithfully,
Devonshire-place, W., July 18th, 1913. George Pernet, M.D.

GERMAN SOUTH-WEST AFRICA.

A report on this German protectorate by the British Consul states that the number of white persons in the territory at the Census of 1912 was 14,816, including 204 British subjects. The native population totalled 81,949, exclusive of coloured labourers from abroad and also of from 120,000 to 150,000 natives belonging to various tribes in Ovamboland and Caprivi Zipfel. The death-rate of the white population was, roughly speaking, 11 per 1000. This low death-rate flatters the country somewhat unduly. Most of the inhabitants are persons in the prime of life, and, as a rule, those who suffer from disease which disables them from earning their living leave the country if there is little prospect of recovery. Amongst natives scurvy is rife during the dry seasons of the year. Some of the large employers of labour have managed to reduce the occurrence of this disease among their workpeople by paying attention to their diet. Pulmonary complaints are common. Tuberculosis is spreading. Venereal diseases are also on the increase, in spite of the efforts of the Government. Hospital accommodation for Europeans shows steady improvement, but the accommodation for natives outside Windhuk (the capital) is far from satisfactory. The arrangements made by the mining companies for the treatment of all employees are, on the whole, excellent.

Speculator.—We do not wholly like the proposal.

Communications not noticed in our present issue will receive attention in our next.

Address in Pathology

ON

CHEMOTHERAPEUTICS:

SCIENTIFIC PRINCIPLES, METHODS, AND RESULTS.

Delivered before the Seventeenth International Congress of Medicine

BY WIRKL. GEH. OBER-MED.-RAT PROFESSOR
DR. PAUL EHRLICH,
DIRECTOR OF THE ROYAL INSTITUTE FOR EXPERIMENTAL THERAPY, FRANKFURT AM M.

MR. PRESIDENT, LADIES AND GENTLEMEN,—It must be a great pleasure and a special honour for all of us to meet here personally on British soil for a scientific purpose, in order to take part in the great work which will be of benefit to the whole world.

THE POSITION OF ENGLAND IN THE FIGHT AGAINST INFECTIOUS DISEASE.

Are we not here in a country that has produced two men who must be considered among the greatest men of all times—Jenner and Lord Lister? Like a star in the darkness of his age Jenner's great achievement, which broke the power of such an awful public plague as small-pox, still shines with peerless splendour. And on the occasion of the last Congress which was held here we gathered with wondering admiration round Lord Lister, who through his introduction of antiseptics brought about a revolution in surgery which stands alone in the history of medicine. Here in England the first example of a modern Institute for Tropical Diseases, which is a model for all other institutes of this kind, was created under the direction of Sir Patrick Manson. Through Ross's excellent work, Laveran's discovery of the causes of malaria was so far advanced that entirely new lines were opened up for the hygienic struggle against tropical and subtropical diseases.

The proof by Castellani that a trypanosome is the cause of sleeping sickness, the classical work by Bruce on illnesses caused through trypanosomes, the specific cause of kala-azar (Dum-Dum sickness), as proved by Leishman, are all well known to us. The therapeutic influence of atoxyl in the cases of trypanosome diseases was first established in the Liverpool Tropical Institute by Thomas and Breinl, and quite recently Plimmer has brought forward the use of tartar emetic as an effective weapon against protozoal diseases.

The lifework of Almroth Wright is also known to all of us —i.e., his work on opsonins and on the prophylactic treatment of typhoid fever, which has been carried out in a practical and most excellent manner. Even these few names, to which I might add many others, show what a high and leading position England has taken, and still holds, in the fight against infectious diseases. To prevent the spread of, and to heal, infectious diseases was at all times the highest aim of medical aspirations; however, a systematic pursuit of this purpose has only been possible in recent times, as through the labours of all civilised nations we have got an insight into the nature of infections, the causes of diseases, and the means by which they are transmitted. Through these methods it has been possible to infect animals artificially, and so obtain material on which to test the drugs in a systematic and rational manner. From the very first beginnings of therapeutics chemotherapy has, indeed, been in existence, as all the remedies which we employ are chemicals; on the other hand, experimental chemotherapy could only develop in modern times in a fruitful manner as a result of all this pioneer work. A special kind of institute, well equipped with chemical apparatus, is necessary for this purpose. The first institute of this kind was founded in Frankfurt through the munificence of Georg and Franziska Speyer.

THE PRINCIPLE OF FIXATION IN CHEMOTHERAPY.

Now, gentlemen, I may perhaps take the liberty of giving you an insight into the workshop of the chemotherapeutic work. The whole area is governed by a simple, I might even say natural, principle. If the law is true in chemistry that "Corpora non agunt nisi liquida," then for chemotherapy the principle is true that "Corpora non agunt nisi fixata." When applied to the special case in point this means that parasites are only killed by those materials to which they have a certain relationship, by means of which they are fixed by them. I call such substances "parasitotropic." But I should like immediately to add that there are evident exceptions to this law. So, for instance, we are acquainted with a small series of cases in which the apparent therapeutic results are obtained, although the allied substances in question do not possess parasite-destroying qualities. That is the case in the infiltration of the subcutaneous tissues, which is caused by a kind of yeast (sporotrichosis). Here Block proved that the clinically highly therapeutic iodide of potassium first of all dissolves the cells of the infiltration, whilst the parasites, as such, are not in the first instance attacked. But, in any case, it is safer and better for the development of chemotherapy not to build on the basis of exceptional work, but it is better to start with such substances, which produce the destruction of parasites by fixation.

Now it has been assumed in different quarters that some of the more modern remedies are incorrectly regarded as parasiticides, but in reality they are not such; thus, for example, salvarsan or mercury salts are not intended to act directly on the parasites, but indirectly, owing to the fact that they excite the organism to the formation of specific anti-substances. This view is mainly based upon the fact that if one mixes the substances in question, such as, for instance, neosalvarsan with certain pathogenic agents—e.g., spirochætæ in test-tubes—one cannot perceive any reduction in their motility after observing them for hours together. From this fact, which was first discovered by Professor Hata, the conclusion has been drawn that salvarsan or neosalvarsan, as such, did not in any way directly influence the spirochætæ. Now it can very easily be shown that this conclusion is quite incorrect.

If, for instance, one suspends the spirochætæ of relapsing fever in indifferent mixtures of serum which do not injure their vitality, and if one fills two small tubes with them and adds to one of the tubes a very small quantity of salvarsan or neosalvarsan, and if one then centrifugalises, and then draws off the liquid, if one washes the remaining spirochætæ again in a mixture of serum and again centrifugalises it, then one obtains in both tubes a deposit of spirochætæ which on microscopic examination show the same properties—i.e., equally good mobility of the spirochætæ. If, however, the spirochætæ obtained in this manner are injected into test mice, then one can very soon convince oneself that the spirilla treated with salvarsan do not give any infection to the animal, whilst the mice vaccinated with the contents of the control tube promptly show signs of infection. This proves that salvarsan or neosalvarsan, as the case may be, is absorbed by the spirochætæ and must have damaged them, and that this trace of salvarsan, which is so exceedingly minute that it can scarcely be weighed, is sufficient to prevent the increase of the parasites in the animal body. Therefore, by this very simple and easily intelligible experiment the direct effect of salvarsan or neosalvarsan on the spirochætæ, and thereby the principle of fixation, is absolutely proved; the objection of the indirect effect based upon anti-substances therefore falls to the ground.

HOW THE DRUGS ARE FIXED BY THE PARASITES.

It was necessary, however, to penetrate more deeply into the mechanism of this fixation of remedies, and it is only after long-continued efforts that success has been attained in obtaining a clear conception thereof. In order to make practical progress it appeared to be necessary, not to be satisfied with the primordial idea, but to see in what manner the drugs are fixed by the parasites or, as the case may be, by the cells. Only by taking a very roundabout way has it been possible to obtain clearness with respect to these complicated relations, and in this connexion it was especially the studies on trypanosomes, and especially the investigations of "drug-fast" strains of germs, which led to quite definite representations with regard to the process of fixation. There was no difficulty by continued treatment of the experimental mice with certain definite remedies—e.g., fuchsin—in finally obtaining a race of trypanosomes which had become immune against these remedies—i.e., "drug-fast" in the

No. 4694.

case mentioned above immune to fuchsin. There were especially three classes of different remedies which were very suited to this purpose: 1. The class of the arsenic compounds, in the following historical order: arsenious acid, arsanilic acid (atoxyl), arsenophenylglycin (salvarsan and neosalvarsan). 2. The class of the so-called azo-dyes (the trypan red, manufactured by Weinberg, with which Shiga and I made experiments, and the trypan blue of Mesnil). 3 Certain basic triphenylmethan dyes (fuchsin, methyl violet, &c.).

When a race of trypanosomes has been rendered immune against fuchsin, then this race is immune against all the allies of fuchsin and methyl violet, &c., but is not immune against the two other classes. Also a race immune against arsenic compounds is only immune against such, but not against the two other classes. We see, therefore, that the immunity is of a quite specific nature, inasmuch as it is limited to a definite class of chemical substances. It was just this specific character which indicated that it must be a question of purely chemical processes. Earlier studies relating to another subject—i.e., those relating to toxins and antitoxins—pointed to the nature of the said processes. In connexion with these it had been shown that the destructive toxins developed their injurious action on the cell by the fact that they are absorbed by certain specific component parts of the cell—side chains—which I have characterised as "receptors," and that the anti-substances represent nothing else than the cell receptors produced in excess under the influence of the toxin and thrown off.

For many reasons I had hesitated about transferring these views relating to receptors to chemical bodies at all, and in this connexion it was especially the brilliant investigations by Langley relating to the effects of alkaloids which caused my doubts to disappear and made the existence of chemoreceptors seem probable to me

From this point of view the phenomena observed in connexion with the drug-fast strains of germs can be very readily explained experimentally, owing to the fact that the chemo-receptors under the influence of "drug fastness" suffer a reduction of their affinity for certain groupings connected with the remedy which can only be regarded as purely chemical. This reduction in affinity explains in the simplest possible manner why continually increasing quantities of the arsenic compound become necessary for the destruction, e.g., of a race of arsenic-fast trypanosoma, for the smaller avidity can only be overcome by a corresponding surplus of the arsenic compound if the quantity necessary for the destruction of the parasites is to be finally fixed.

We, therefore, come to the conclusion that in the parasites there are present different specific chemo-receptors; for instance, the arseno-receptor which fixes the trivalent group of arsenic as such, and the acetico-receptor which fastens to itself the acetic acid group, an iodine-receptor, an orthoamido-phenol-receptor which conditions the fixation of the salvarsan and many others in addition. A complete exhaustive knowledge of all the different chemo-receptors of a certain definite parasite is what I should like to characterise as the "therapeutic physiology of the parasite cell," and this is a *sine quâ non* of any successful chemotherapeutic treatment. I should like to emphasise the fact that many observations indicate that certain chemo-receptors are due to several different kinds of parasites, not only to a single one. The knowledge of these is of special practical importance, because remedies which are adjusted to these have a healing influence on a very large series of the most various pathogenic agents. The larger the number of different chemo-receptors, therefore, which can be demonstrated, the greater is the possibility of a successful chemotherapy.

THE NATURE OF SPECIFIC REMEDIES.

Now, if we seek for specific remedies, then the first condition is that they must possess a certain definite grouping which is chemically allied to one of the chemo-receptors of the parasite. This is only a necessary prior condition of the toxic effect, but in general it is not a sufficient one in itself. Hundreds of substances may fix themselves on a parasite, and only a few are capable of bringing about its destruction. In the therapeutically suitable substance there must, therefore, in addition to the fixing group, which brings about the fixation of the haptophoræ, be another which as such brings about the destruction, and which, therefore, is to be characterised as the "poisoning" or toxophoric. This representation exactly corresponds to the views which we have already long since obtained with respect to toxins, in which we distinguish the presence of a haptophoric group which conditions the cell fixation and also the formation of the antitoxins, and a toxophoric group which brings about the injurious action on the cell. In the case of the highly complicated synthetic drugs the assumption will have to be made that the haptophoric group and the toxophoric group are not directly connected with one another, but as separate groups are linked with a chemical molecule in the character of side chains. In this way we arrive in a natural manner to this, that chemotherapeutic agents built up in a complicated manner may be compared to a poisoned arrow; the fixing group of the drug which anchors to the chemo-receptor of the parasite corresponds to the point of the arrow, the binding member is the shaft, and the poison group is the arrow poison fixed to the shaft of the arrow. Corresponding to this scheme in the case of salvarsan (dioxydiamidoarsenobenzol) the benzol group would correspond to the shaft, the orthoamidophenol group to the point, and the trivalent arsenic group would correspond to the toxophoric group.

If we continue this comparison, then the substances which are used for poisoning the arrows are alkaloids and similar substances, which act injuriously on certain definite vital organs of the body; and so we shall also have to assume that the toxophoric grouping of the synthetic drugs poison the protoplasm of the bacterial cell, and this only appears to be possible when a chemical affinity exists between the toxophoric grouping and the constituents of the cell. The circumstance that all the derivatives of arsenic which contain arsenic in the pentavalent form—i.e., in the fully saturated form—do not bring about any therapeutic action, but that this only commences when the arsenic group exists in the unsaturated condition corresponding to the trivalent radical, certainly points in the same direction. This difference between the saturated and unsaturated arsenic radical was discovered by the master mind of Bunsen, for in the year 1843 in his comparative studies relating to the nonpoisonous kakodylic acid with the pentavalent arsenic, and its poisonous reduction product the kakodyl with the trivalent arsenic, he came to the conclusion that "the kakodylic acid had lost the power to form an attacking point, and at the same time it had lost its effect on the organism." In the subsequent period a very large series of analogous cases have become known corresponding to this truth, which point to the increased effectivity of the unsaturated radical. The best known example is doubtless the high degree of toxic power of carbon monoxide as compared with the almost indifferent carbon dioxide. Dyes act as bactericides only as such, but not in the form of their colourless products which correspond to the saturated type. The fact is that all these unsaturated combinations contain unsatisfied avidities which render them capable of reacting additionally with other combinations.

If, therefore, we poison a spirochæta with salvarsan, then there occur at least two different chemical fixations: first of all, the fixation of the excess of orthoamidophenol, which primarily fixes the salvarsan to the parasite. It is only in consequence of this fixation that secondarily the trivalent arsenic group is given the opportunity of entering into chemical combination with the arseno-receptor of the cell, and so to exert its toxic effect. The avidity of the arsenoreceptor can in itself be such that it can only react if favouring factors, which chemically must be regarded as a stereo-chemical facilitation, come into action.

Examples of such stereo-chemical facilitations are frequently found in chemistry—e.g., in the chemistry of the ortho-condensations. And so the haptophoric group of the arsenic molecule primarily brings the arsenic along to the cell, and secondarily brings about its possibility of action.

Now, it is a frequent practice of many uncivilised peoples, in order to be certain of killing their enemies, that they not only rub over their arrow with one kind of poison, but with two or three totally different kinds of poison. And so it also appeared advisable to imitate this procedure against the parasites, which is otherwise not very praiseworthy, and to poison our synthetically poisoned arrows not singly but doubly. In association with Dr. Karrer I succeeded in depositing the reduced arsenic compound, e.g., salvarsan, even on metals, and so in arriving at remedies which, used experimentally on animals, show an increased effect.

THE RELATIONSHIP OF THE ORGANOTROPIC AND PARASITROPIC ACTIONS OF DRUGS.

In the previous remarks I have described the conditions which are necessary in order that a certain substance may exert a parasiticidal effect, and indeed must effect such, if it operates directly on certain definite parasites in an aqueous solution, such as, for instance, is the case with the ordinary disinfectants. In the manner described above it is easily possible to arrive at a very large number of substances which will destroy bacteria and allied substances in aqueous solutions. But, of course, the problem is much more difficult when it is a question of internal disinfection or of the destruction of living parasites within the infected organism. If the problem is set before us of sterilising a room, then indeed it is an easy matter to do so, owing to the present advancement of science; but the task becomes more difficult when the room is filled up with materials, and when these materials are of such a delicate sensitiveness as living cells then the difficulty of the problem will be manifest without any further explanation. As a matter of fact, it has been proved that substances which bring about a colossal bactericidal effect in aqueous solutions, even when they are highly diluted, are totally ineffective in therapeutics properly so called. For it has turned out that, generally speaking, these disinfectants are more or less powerful cell poisons, and seriously injure the organism; they are, therefore, not only parasitotropic but also organotropic.

Now, it depends exclusively on the relationship between parasitotropic and organotropic as to whether a certain disinfectant can be used as a remedy. In Robert Koch's celebrated experiment, in which even the largest doses of sublimate did not produce even a trace of therapeutic effect on anthrax infection, it is evident that the parasitotropic effect was reduced to *nil* by the organotropic effect. If the relationship of organotropic to parasitotropic is somewhat more favourable, then one may observe a peculiar phenomenon, consisting in the course of the infection being rendered worse to an extraordinary degree by the remedy, owing to the effect that the parasites increase to a much greater extent than is generally the case.

This phenomenon, discovered by Hata, is explained owing to the fact that the ratio of organotropic effect to parasitotropic effect is of such a nature that almost the whole of the poison is absorbed by the organism, but only in infinitesimal quantities by the parasites. According to a biogenetic foundation principle it is quite a common thing for substances which act destructively in large quantities to bring about an increase in the vital functions in smaller doses. Only such substances, therefore, can be used as therapeutic agents in which the ratio between organotropic and parasitotropic effect is a favourable one, and that can be easily ascertained by experiment by a comparison between *dosis toxica* and *dosis tolerata*. Only such substances can be considered therapeutic agents of which a fraction of the *dosis tolerata* is sufficient to bring about a therapeutic effect.

The organotropic effect of drugs is, of course, to be attributed, according to the views of Langley and myself, to this—that there are, in most various cells of the body and its organs, quite different chemo-receptors, exactly in the same manner as we have postulated for the parasites. Apart from the pharmacological effect of the various remedies, this chemical difference of the organs appears clearly in the vital colouring.

I will mention here—in order only to indicate a few examples—the methyl-blue colouring of the nerve trunks, the neutral red colouring of the cell granules, and the distribution of the isamin blue in the so-called pyrrol cells, so

duction of paraphenylendiamine only the summit of the diaphragm assumes a black colouring; when we see that vinylamin in the case of all kinds of animals isolates and injures the renal papillæ and causes them to die; when after the introduction of cyanosin—as Hata and Goldmann have found—certain definite regions in the hair of mice become coloured, and the colouring matter becomes stored in the greatest degree in the milk glands; when a colouring material of the pyronin series in the case of mice brings about a general dropsy amounting to 50–60 per cent. of the body without injuring the kidney, which doubtless is only to be referred to an alteration of the vessels of the subcutaneous connective tissue, then

explained by the fact

chemical connexions of

which must be referred to the presence of certain definite chemo-receptors.

THE VARYING ORGANOTROPIC ACTION OF DIFFERENT ARSENIC COMBINATIONS.

Now, according to the above representations, all these fixations are dependent on the haptophoric grouping of the drugs, and therefore it was a matter of great interest to observe how phenylarsinic acid, the mother substance of the modern arsenic compounds, behaves when various different groups are attached thereto. In this connexion it has turned out that when we introduce different constituent fixation groups—chlorine, the oxygen group, the hydrocyanic acid group, the sulphuric acid group, the ammonia radical—we can manufacture, starting from one substance, a series of combinations the toxic effect of which may vary fifteen hundredfold. The combinations which are to the greatest extent free from poison—these are derivatives of sulphuric acid, especially the sulpho-phenylarsinic acid and their salts—are less toxic than sodium chloride; and, on the other hand, there are substances the very smallest quantities of which bring about death. And in this connexion we can see that according to the nature of the substances very different organs of the animal's body are injured. Sometimes it is the intestinal tract, and the animals die from profuse diarrhœa; sometimes it is the liver, and the mice—a rare occurrence—become jaundiced and die from serious alterations in the liver; sometimes the red blood corpuscles become dissolved and the animals die from severe anæmia. Frequently also the central nervous system becomes injured, and in the case of mice this usually relates to the vestibular nerve of the inner ear. The interference with the equilibrium produced in this way causes the mice to constantly turn in circles just like the Japanese dancing mice. In the case of human beings the optic nerve is the point of attack for numerous derivatives of phenylarsinic acid. The cases of blindness which have been observed after the use of very large doses of atoxyl, arsazetin, and other drugs are due to this injury.

From this it is evident that according to the selection of the group annexed to the phenylarsinic acid quite different organs will be affected. This is only explained according to the above views by the fact that there are, as already previously stated, in the various organs specific chemo-receptors which energetically attract certain fixation groups somewhat as the magnet attracts iron. And this view also provides us with the principle according to which we have to construct our poisoned arrows. We must attach to the phenylarsinic acid group, or as the case may be to the phenylarsenobenzol group, such grouping as is only related in a small degree to the organs of the sick body, but, on the other hand, is very closely allied to the receptors of the parasites.

THE QUALITIES OF AN IDEAL REMEDY.

I have explained above that the parasites possess a whole series of chemo-receptors which are specifically different from one another. Now if we can succeed in discovering among them a grouping which has no analogue in the organs of the body, then we should have the possibility of constructing an ideal remedy if we select a haptophoric group which is specially adjusted to the functions of the parasites. A remedy provided with such

entirely innocuous in itself, as

it would, however, strike the

and in this sense it would correspond to the immune productions, to the anti-substances discovered by Behring, and which, after the manner of the bewitched balls, fly in search of the enemy. Let us hope that it will be possible chemo-therapeutically to hit the bull's-eye in this manner also. I do not consider this at all out of the question, as it may be proved in certain sicknesses—e.g., spirillosis in hens—that from the fiftieth to the hundredth part of the *dosis tolerata* of salvarsan entirely frees the animals from the parasites and leads to a cure. Such a dose truly represents a *nil* dose, as the hen cannot be damaged thereby in the slightest degree. But such favourable conditions have only very rarely been discovered up to the present; we shall have to

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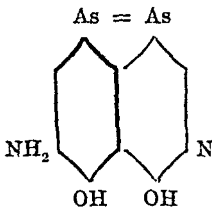
[1] THE LANCET, July 12th, 1913, p. 69.

be satisfied if we can succeed in obtaining good therapeutic results with the tenth or even the fifth or sixth portion of the *dosis tolerata*.

In the main the above are the principles which guided us in the construction of the new remedies. Among the numerous combinations which have been tested in experiments on animals in the case of trypanosomes and spirillar infection, and in the preparation of which I have been supported by the untiring coöperation of Dr. Benda, Dr. Bertheim, Dr. Kahn, and Dr. Karrer, and which have been biologically tested, especially by my respected friend Professor Dr. Hata, and later by Dr. Castelli and Dr. Gonder and Frl. Leupold, salvarsan has proved to be the most efficient, the dioxydiamidoarsenobenzol of the formula—



Here the orthoamidophenol group acts as a conducting and the arsenic group acts as a toxophoric group.

THE CLINICAL APPLICATION OF EXPERIMENTAL WORK.

But now, gentlemen, the step from the laboratory to practice, i.e., to the bedside, is an extraordinarily difficult and dangerous one—a step which can only be taken with the greatest care. Its difficulty and danger are in the main based upon two factors.

1. On the fact that in the case of men there exist so-called idiosyncrasies, forms of supersensitiveness which do not occur in the case of animals. So, for instance, it is known that with a large number of thoroughly healthy persons the use of harmless articles of food, such as strawberries, crabs, &c., bring about unpleasant skin eruptions, and almost half the known remedies can incite such phenomena of supersensibility. It will not be a cause of surprise, therefore, that such phenomena may occur in a particularly serious form with the employment of therapeutic agencies which contain such powerful-acting radicals as arsenic and mercury. I have already referred above to the disturbances of vision and cases of blindness which are produced by certain arsenic compounds. Fortunately, it is proved that such primary supersensibility in the case of salvarsan is one of the very rarest phenomena, and that it was perhaps due to a number of other circumstances, sources of error of a hidden nature, which in many cases have led to the mistaken idea that supersensibility existed. In this place we must first of all mention Wechselmann, McIntosh and Fildes, Hort and Penfold, who have brought forward the very important proof that the destroyed bodies of bacteria which may occur in sterilised water are capable of bringing about a series of serious and unpleasant phenomena, such as fever, vomiting, diarrhœa, &c. And even in the case of a pure, unexceptionable water, technical mistakes in the manufacture of the salvarsan solutions may bring about injury; too large an addition of alkali injures the veins used for the injection; too small a degree of alkali brings about blood coagulation, and leads to thrombosis, and a lengthy shaking of the solutions and standing in the air oxidises the drug to a toxic product, the so-called oxide of arsenic, which is much more highly toxic than salvarsan.

2. It has been shown that certain illnesses of a constitutional nature can cause a supersensibility. So, for instance, tuberculosis of the suprarenal region, the so-called Addison's disease, is an illness which, according to the observations of Wechselmann and my own, brings about a severe supersensitiveness of the patients to arsenic compounds, and the same applies also to the status lymphaticus, which, as has already long been known, must be regarded as a type of a constitutional lack of resistance and supersensibility.

Furthermore, the seat and location of the disease may also bring about supersensibility, a supersensibility which is excited by the so-called "local reaction." We are indebted to the master mind of Robert Koch for the first knowledge of this peculiar phenomenon—the well-known tuberculin reaction of the tuberculous focus. Exactly similar reactions may, however, occur when in a focus filled with parasites the parasites are rapidly dissolved. Then under the influence of the liberated toxins an irritation of the tissues sets in which is connected with hyperæmia and swelling, and which is known in the case of the "luetic" illnesses as Jarisch-Herxheimer's reaction. Such reactions are of course of no great importance in connexion with the skin tissues; but if the reacting centres have their seat in the neighbourhood of vital organs (brain), then the swelling may perhaps bring about injury of a nature serious to life, or even death itself. Indeed, it is well known that tuberculous meningitis may be influenced in an exceedingly dangerous manner by a careless tuberculin reaction. In spite of this, however, no one will think of attributing the nervous disturbances to a neurotropia of tuberculin. And exactly the same phenomena may occur with salvarsan also if the spirochætæ of syphilis have localised themselves in the central nervous system.

As you will see, the treatment of patients is an exceedingly difficult and responsible task, and the clinical pioneers such as Schreiber, Wechselmann, Iversen, &c., deserve our warmest thanks. They have thrown the first light upon the most important questions (dosology, indications, and contraindications). From a series of observations which is now so vast that it can hardly be surveyed there has, however, resulted what I might call the "therapeutic tactics," and which I should here like briefly to explain.

THE THERAPIA STERILISANS MAGNA.

The therapia sterilisans magna consists in this, that by means of one or at most two injections the body is freed from the parasites. In experiments on animals, and also in the case of a series of important maladies, this principle can be carried through in a clear and pure manner. Here, therefore, the old therapeutic remedy is applicable: "*Frapper fort et frapper vite.*" It is a matter of course that the necessary dose must be greater in proportion to the advance of the disease, for it is absolutely clear that if a definite number of parasites is destroyed by a certain definite dose of the remedy, the quantity must be multiplied if the number of parasites—as happens during the course of the infection—has likewise multiplied. Apart from this, by a rapid destruction of the parasites endotoxins are set at liberty which with increasing numbers reach the circulation of the blood in ever increasing concentration. And then frequently at the height of the disease serious or irreparable pathological disturbances occur, such as suppuration or necrosis, which of course continue even when the pathogenic cause has been destroyed, and may lead to unpleasant complications.

I refer here to the typhoid ulcers and to the abscesses and necrosis in the case of horse sickness. Therefore, it is in my opinion necessary to allow the therapeutic treatment to come into action as early as possible, as under these circumstances the full success is most easily and most surely attainable. And it is just in these present times when owing to the progress of diagnosis, and especially the modern assistance rendered by the microscope, and serological investigations which are connected with the names of Widal, Rubner, and Wassermann, we are in a position to recognise the specific infections early, we must select as the first principle of medical treatment: *frapper vite.*

We shall now have to ask ourselves the question, What are the causes which make it possible for such a favourable result to be obtained, a result which may be taken as therapia magna sterilisans, radical cure of the body by means of a single injection? Typical antibodies can be shown to be produced fairly rapidly by the destruction of parasites, and especially the protozoa. Hence it is quite evident that this assisting action of the organism ought to be eminently efficacious. For if the medicine has destroyed not the whole of the parasites but only 95 per cent., and 5 per cent. have resisted its action, then these remaining 5 per cent. are sure to succumb to the influence of the antibodies which are rapidly formed. If this is the case the therapia sterilisans magna is attained.

"RELAPSING CROPS" OF PARASITES.

Unfortunately, it has been shown that this salutary process may frequently be minimised considerably owing to the biological properties of the parasites. For it may happen that a part of the parasites which survive the first injection escape destruction by the serum either wholly or in part, and subsequently change into new varieties which have become serum proof, and which are known as a relapsing crop. The possibility of forming a relapsing crop largely depends on the nature of the parasites. In the case of spirillosis of fowls, which as is known is a disease taking a typical course, relapsing crops do not seem to form, and therefore the chemotherapeutic cure is an eminently easy one. In cases of recurrent or relapsing fever in human beings the number of the relapsing crops is restricted to 3 to 4. The number of relapses which we have observed clinically corresponds exactly to the existence of the various relapsing strains. On the other hand, other parasites can exist in an extraordinarily great variety of relapsing strains, and in this connexion *I need only* [illegible] in particular the parasite [illegible] in collaboration with Dr. [illegible] ely with Dr. Ritz, I have been able in the case of mice to produce and to transmit for any length of time eight entirely different forms of growths. It is clear that parasites of this kind which are able to form such a large number of relapsing crops offer very great difficulties in their treatments, as in this case the auxiliary forces of the body fail to act, so that it is necessary to do one's utmost to destroy the whole of the parasites all at once by means of drugs, as owing to their great power of adaption a single germ surviving may perhaps be the cause of the infection breaking out afresh.

CAUSES OF DEFICIENT STERILISATION.

At this juncture the question arises as to what are the causes of some of the germs being able to escape disinfection. If a certain exactly definable quantity of an antiseptic is added to a liquid containing bacteria (suspension of bacteria), a complete disinfection takes place; not a single germ escapes the destructive influence. However, such ideal conditions do not obtain in living organisms. Even in disinfecting a room we sometimes find that in certain places, in the so-called "dead corners" formed by piping, water-pipes, &c., the gases of the disinfectant do not act sufficiently. In like manner the parasites which have settled in such dead corners of the organism are not reached by the medicine. Practical tests have, however, quickly taught us where such dead corners are to be found in the organism; the principal one is the hollow situated between the spinal cord and the dura, which is filled with a liquid as clear as water and almost entirely free from cells and albumin, the cerebro-spinal fluid. This condition of the cerebro-spinal fluid can only be accounted for by the fact that the cells by which it is secreted are in a high degree impervious to most of the constituents of the organism—for example, albumin—and that they only permit a limited quantity of substances with small molecules to pass through. The drugs with more complex molecules are thus kept back, like albumin, and cannot get into the cerebro-spinal fluid. Should, therefore, parasites be lodged in these places, it is impossible for the drug to attack them. This localisation of the parasites is of very special importance in connexion with the parasyphilitic diseases, tabes and paralysis.

Another possible explanation of the deficient sterilisation is this, that among the large number of parasites there may be some which are unaffected by certain drugs, thus resisting sterilisation. On the whole, I am of opinion that this fact does not play a very great part in the course of fresh infection, but that it becomes prominent in connexion with those frequently recurring diseases which are characterised by innumerable relapsing crops, such as sleeping sickness, lues, &c.

Here two possibilities are conceivable: Firstly, if sleeping sickness, for example, is treated with atoxyl in the usual manner, it is possible—as can be demonstrated easily by experiment—for an atoxyl-proof stock to form itself by adaption. But, secondly, as I have already mentioned, the mere continual formation of relapsing crops, likewise in the course of time and of several generations, alone can bring about a change in the chemo-receptors of the parasites, [illegible] nstances, may result in an [illegible] resistance of the parasites. [illegible] a trypanosome strain which [illegible] l lost this peculiarity after having passed into a relapsing crop.

We should, of course, expect that certain relapsing crops, and especially those showing a great tendency to relapse, should become much less sensitive than the original stock. And the serious influence of the usual specifics, mercurial and arsenical, upon parasyphilitic diseases, in connexion with which Noguchi has lately proved the presence of living spirilla, tends to show that this is the case here.

MEASURES ADOPTED TO RENDER THE PARASITES ACCESSIBLE.

These few facts and considerations suffice to indicate in which cases we may rely upon the result of the chemotherapeutic treatment being entirely successful, besides being quick, and in which cases such a result is to be obtained less easily and only by a circuitous road. The latter is especially the case with chronically recurring diseases accompanied by localisations not easily reached. If we compare the fight against parasitic diseases with a state of warfare, we find that on the one hand great battles are fought which may lead to victory in the course of one or a few days. In combating bacteria such a victory would compare with therapia magna sterilisata. If, on the other hand, a fortress has to be taken, the goal cannot be reached with one single stroke, but it may take months and even years.

May I be permitted at this juncture briefly to point out the aids which are employed in connexion with a bacteriological siege:—

1. When parasites are lodged in dead corners and are in consequence difficult to reach, it has frequently been found advisable to employ instead of one single injection a long series of injections extending over several weeks, the so-called serial treatment, in accordance with the rule, *Gutta cavat lapidem*, and in this connexion I would specially point to the results which Leredde, of Paris, and Dreyfus, of Frankfort, have obtained by these means.
2. In this connexion it is desirable to employ a therapeutic agent of as small a molecular volume as possible, such as urotropin, which has been successfully employed by S. Flexner in cases of infant paralysis.
3. Various writers (Touton, Dubot, &c.) have suggested rendering the plexus epithelium more pervious to the therapeutic agent by means of certain chemicals, thus causing more of the therapeutic agent to get into the cerebro-spinal fluid. Unfortunately, this method so far has not led to any tangible results.
4. The possibility of making direct injections into the cerebro-spinal canal in order to let more of the therapeutic agent get directly to the parasites contained in the fluid has also suggested itself. Thus Ayres Kopke, of Lisbon, has injected suitable disinfectants into the cerebro-spinal canal; while Swift and Moore, of the Rockefeller Institute, have quite recently adopted a novel and interesting method in the treatment of tabes which promises to be very valuable. They treat the patient by first injecting salvarsan; shortly afterwards they draw blood from him and inject considerable quantities of the serum obtained from this into the spinal canal. This method is not only novel but suitable, in so far as it obviates all possible ill-effects on the sensitive central nervous system by employing serum obtained from the patient himself, while at the same time it is possible to apply the curative in sufficient quantities. The results obtained in this connexion were entirely satisfactory.

It is fairly obvious that all these measures aim on the whole at rendering the places which are not easily accessible more accessible for the therapeutic agent than is the case under ordinary conditions. On the other hand, however, the greater power of resistance of certain parasites has to be taken into account, and this is a purely chemical question which can only be solved by chemical means. The road leading to its solution which promises the best results is that of combined therapy.

COMBINED THERAPY.

From what has been said it will be seen that the combined therapy is best carried out with therapeutic agents which attack entirely different chemo-receptors in the parasites. For instance, it is useless to combine fuchsin with its nearest relative, methyl-violet; and it is useless to combine therapeutically trypan blue and trypan red, for both attack the same spots in the parasites, but it is necessary to select from each group the most effective substance and then to combine the most suitable representatives of the various types. It is clear that in this manner a simultaneous and varied attack is directed on the parasites, in accordance with the military maxim: "March apart but fight combined."

In this connexion the interesting fact has been brought out that when such combinations are used *quoad* organism, summation of the toxic properties of the various substances need not occur, while, *quoad* parasite, the therapeutic properties can be increased. To quote a case in point. It has been found that a sulphite of p-oxyphenylarsinic acid, which is ten times as poisonous as salvarsan, when added to salvarsan up to a certain percentage, did not render the mixture more poisonous. But the healing properties of the mixture were three to four times greater than those of salvarsan in connexion with trypanosome infection in mice. Such phenomena are quite common in connexion with combined therapy. If one injects a substance, as for instance (*a*) parafuchsine and (*b*) salvarsan, simultaneously, the colouring matter is stored up by other receptors, and finds its way into other organs, than does the salvarsan, so that by this method an increase in the toxicity does not take place, provided the components have been properly selected. In this case ½ plus ½ is not equal to 1, *quoad* affection of the organ, but smaller than 1. On the other hand, both substances are concentrated in the parasites, and their effects can consequently be added, or in favourable cases can be multiplied. We thus obtain the therapeutical inequality ¼ plus ¼ plus ¼ equal to 1.

I have maintained this point for quite a long time, and some very remarkable studies upon the same subject have recently appeared from Morgenroth's laboratory, in which stress is laid on the suitability of multiple, ternary, and quaternary combinations.

Moreover, according to more recent experiments, it seems advisable in connexion with cases where anti-substances are produced, systematically to incorporate these same in the combination, because the anti-substances require a receptor apparatus entirely different in nature from the chemoreceptors. Thus the combination of pneumococcal serum with methyl-hydro cuprein, as tried by Morgenroth, has proved very efficient in connexion with tests on animals executed by Neufeld, while Dr. Bierbaum discovered simultaneously at my institute that exactly the same holds good in connexion with a combination of dysentery serum and salvarsan.

Thus the value of the combinations is clearly shown, as they make it possible, always assuming that suitable substances are used, to effect a cure with the smallest possible doses and in the least harmful manner, and to eliminate any danger resulting from a maximum dose of one of the ingredients. A further advantage of combined therapy is, that under the influence of two different medicines the danger of rendering the parasites immune to arsenic, which naturally would be a very great obstacle in connexion with further treatment, is apparently greatly minimised. Thus it has been shown that in the course of a prolonged quinine treatment it may happen—the cases are fortunately not very frequent—that the malaria parasites become quinine proof, so that therapeutical doses of quinine are no longer able to remove the parasites. If, however, such a patient receives an injection of salvarsan the malaria parasites are destroyed at once, for although they may be quinine proof they are not arsenic proof. Should the doses of salvarsan have been too small to prevent a relapse, and provided further quinine is given to the patient on the parasites again appearing in the blood, a curative effect may be obtained by means of quinine. Consequently the combination of quinine and salvarsan has the effect of neutralising or minimising the quinine-proof qualities of the parasites.

For all these reasons I think that combined therapy will in the future conquer an ever-increasing field of action. Thus, for instance, Broden in the Congo succeeded in connexion with sleeping sickness in the human subject—it is true only in the early stage of this infection, which is so difficult to fight against—in obtaining good results by the combination of salvarsan and two basic colouring matters (trypaflavin and tryparosan) by treatment lasting about a week.

It is precisely in the manifold character of the possibilities of combination that I see a special advantage and peculiar possibilities of development. When once we are acquainted with the majority of the chemo-receptors of a particular kind of parasite, which will be a long piece of work, occupying many hands and heads, we shall have the most far-reaching possibilities of simultaneous attack by various agencies. And on this account combined therapeutics are absolutely pluralistic in contrast to antitoxins, which may be said to act rather in one single direction.

PRACTICAL RESULTS.

And now, gentlemen, may I be permitted to refer to a few practical results. You are all aware that with a number of spirillar diseases the principle of therapia sterilisans magna has proved most successful. You are aware that it is possible by one single injection of salvarsan to cure frambœsia (yaws), which is also caused by spirochætæ, and is a scourge of the tropics, of curing it completely except in rare cases where unimportant relapses occur; this has been shown by the work of Strong, Koch, and Castellani. Thus, in Surinam a hospital in which over 300 patients with frambœsia were constantly under treatment was closed and turned to other uses after the introduction of the salvarsan treatment, as one single injection sufficed to cure the disease, and the patients could all be discharged but two. It is to be hoped that in this way it will be possible altogether to extirpate frambœsia. Exactly the same favourable results have been attained with recurring fever in the human subject, the fever immediately subsiding after the injection of salvarsan, and the patients being cured by one injection. The very rare cases of relapse occasionally occurring are also readily curable.

To continue dealing with salvarsan, in syphilis, which is so closely related to frambœsia, a fair percentage of cures has been obtained in the very first stage of the disease by a single injection of a large dose, but of course the abortive cure by intensive treatment is far more certain.

With Vincent's angina and the diseases of the mucous membrane of the mouth, which are caused by spirochætæ of the mouth, therapia sterilisans magna is possible; in fact, in many cases a mere local application of salvarsan suffices. I may here further mention tertian malaria, in which form, but in this form alone, salvarsan has proved successful, and blastomycosis (Petersen) and the Aleppo boil. As regards diseases of animals, which can be cured by one single injection of salvarsan, I might specially mention breast-disease of horses, which is of such enormous importance to the military authorities, and lymphangitis epizootica, the African glanders in horses.

Most important are the recent observations of Rogers, who found emetine to be a specific against the very serious amœbic dysentery. And if here it is, indeed, advisable and necessary to repeat the injections, yet the triumph of therapeutics remains unassailed; it is all one to the patient as to whether therapia sterilisans magna or sterilisans fractionata is employed, provided only he is relieved of his sufferings in a harmless manner.

Piroplasmosis also, which exerts a disastrous action, causing serious disease in cattle and dogs, may according to the observations of Nuttal be favourably influenced by a pigment belonging to the class of trypan colouring matters—viz., by trypan blue—which was first composed by Mesnil. As I am informed, the fight against this disease has been taken up in a general manner at Pretoria under the auspices of Theiler. The injections are there performed, not by veterinary surgeons, but by the farmers themselves, and they are glad to save their valuable animals scot-free from this serious disease.

It is indeed easy to understand that the schizomycetes, which in themselves are so much hardier than the tender protozoa and spirochætæ, will offer an increased resistance to the attack of drugs. Naturally here, too, there are fine differences, and it is perhaps no accident that the pneumococcus, the protoplasm of which is, of course, most sensitive, should in the course of treatment also have shown itself to be particularly sensitive. (I refer here to the fine researches of Morgenroth in the treatment of laboratory animals infected with the pneumococcus by means of derivatives of quinine, especially ethyl-hydrocuprin.) But in the case of hardier bacteria, too, such as the bacillus typhosus, the possibility of sterilisation is not beyond hope. The first successful experiments in this sphere were carried out by Conrad on rabbits and later confirmed and extended by Uhlenhuth and his fellow-workers on this species of animal.

If I briefly allude to the very hopeful experiments of Gräfin Linden, who has endeavoured to influence tuberculous infections favourably by means of combinations of copper and lecithin, and if I add that salvarsan also has been shown to have a beneficial action upon the malignant anthrax bacillus and upon that of glanders, and possibly upon that of erysipelas, both in animal experiments, and occasionally, too, in human cases, then all that we know about the chemicotherapeutics of the specific bacterial diseases has been told, so that it is just in this direction that there lies a wide field still to be worked. This field, important as it is, is still in the very first stages of experimentation.

A GLANCE AT THE ADVANCES IN REGARD TO INFECTIOUS DISEASES.

And if after what has been said we cast a glance over the development of medicine, and especially of the fight against infectious diseases, we must recognise that in the last 50 years the most important advances have been made in every direction, advances connected, above all, with the names of Pasteur, Robert Koch, and von Behring. On the one hand, we have the isolation of the pathogenic bacteria, which was made possible really by the Koch method of the solid culture medium, and in which Robert Koch's pupils and fellow workers, Löffler, Gafftey, Pfeiffer, in the first order, participated; the study of the protozoa, which started from Laveran's discovery of the germ of malaria; the discovery by Löffler and Frosch, Roux and Nocard, of the viruses, which pass through filters; the recognition of insects as intermediate hosts and transmitters of infectious diseases, which is connected with the name of Theobald Smith, and which has led to the most important conclusions. On the other hand, we have the study of the immunity theory, which was first inaugurated so brilliantly by Metchnikoff, and which received a new impetus from the wonderful discovery of antitoxin by von Behring, through which a wide new field, that of the science of immunity and the investigation of serums, was opened up, on which Pfeiffer, Bordet, Widal, Wassermann, and many others, including myself, have worked with successful results. Some of the most valuable fruits of these labours from a practical point of view have been the diagnosis of diseases first in the form of the Widal-Gruber reaction, and later the Wassermann syphilis reaction, the importance of which for diagnosis and therapeutics cannot be estimated.

All these discoveries, especially in regard to the ways of spreading diseases on the part of the infecting agencies, have in accordance with the principle that "prevention is better than cure," been made good use of in the fight against epidemics and for prophylactic measures, and have brought about an improvement surpassing expectation. In the second place, the struggle with diseases which have already broken out has been able to derive advantages from these discoveries, the most wonderful example being the diphtheria serum.

THE HOPEFUL PROSPECTS OF CHEMOTHERAPY.

Now that the liability to, and danger of, disease are to a great extent circumscribed, so far as epidemics and many other diseases are concerned, the efforts of chemotherapeutics are directed as far as possible to fill up the gaps left in this ring, more especially to bring healing to diseases in which the natural powers of the organism are insufficient. And I believe that now, when definite and sure foundations have been laid for the scientific principles and the method of chemotherapeutics, the way is visible before us; not always an easy but yet a practicable way. In the diseases involving protozoa and spirilla extraordinarily favourable results, as I have shown, have already been gained, which can also satisfy far-reaching tests. There are many valuable indications that in a series of other diseases—small-pox, scarlet fever, typhus exanthematicus, perhaps also yellow fever, and, above all, infectious diseases caused by invisible germs—the prospects of success are brightening. But in contradistinction to these superparasites the ordinary or common bacterial diseases (diseases due to the streptococcus and the staphylococcus, coli, typhoid, and dysentery, but, above all, tuberculosis) will still require a hard struggle. Nevertheless, I look forward with full confidence to this development also, and might without being set down as an optimist put forward the view that in the next five years we shall have advances of the highest importance to record in this field of research. There are, indeed, problems which often prove too great for the powers of individuals and can only be solved by a many-sided effort. Considering the enormous number of chemical combinations which are taken into consideration in a struggle with diseases, it will always be a caprice of chance, or fortune, or of intuition, which decides which investigator gets into his hands the substances which turn out to be the very best materials for fighting the diseases or the basal substances for the discovery of such. But the chances in favour of finding a real cure, and so of winning the big prize, will naturally rise with the number of those who occupy themselves with the definite problem. It is just at this point above all that necessity arises to gather and unite all powers, and here special force attaches to that motto, "Viribus unitis," which gives guidance in so many other fields, which in so exemplary and fine a way is the foundation of this great International Congress, to which thousands have been drawn from all lands to give their testimony that in the world of science all national barriers have disappeared.

An Address
ON
HEREDITY.

Delivered before the Seventeenth International Congress of Medicine

BY W. BATESON, M.A., F.R.S.,

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GENTLEMEN,—Let me on behalf of my colleagues, the students of genetics, express our deep sense of the honour conferred upon us by the organisation of your Congress in choosing our science as the subject of one of the general addresses. It is scarcely necessary that I should say on my own behalf that I feel it an extraordinary privilege to be permitted to represent that science on such an occasion.

INTRODUCTORY REMARKS.

This is a great privilege, but it entails also a very grave responsibility. Conscious as we are of the exceptional significance that the study of heredity must before long assume, it would be mere affectation were I to suggest any misgiving as to the propriety of allotting to this subject a conspicuous position in your deliberations. To the penetrative foresight of Francis Galton it was evident long ago that these aspects of physiology must one day become one of the chief preoccupations of reflecting minds. That inference he drew from a broad contemplation of the facts of descent. Traces of order among those phenomena he did indeed perceive, and by great l [illegible] cal expression to h [illegible] were in attracting [illegible] the rediscovery of Mendel's work had ventured to imagine that the confusion, the paradoxes, the capricious disorder of the phenomena of descent were, in very great measure, capable of a simple and ready analysis. It is this knowledge which has given to genetic science a position paramount among the branches of physiology, showing that in accurate genetic [illegible] ating the inter- [illegible] liate subject of [illegible] a right inter- [illegible] hology and of [illegible] anthropology, perhaps, also, to a true understanding of the course of human history, and certainly to the direction and control of the destinies of mankind. Knowing, as I must, that the manner in which these issues are presented to you to-day cannot fail to influence in some measure the development of genetic study in the medical world, I should be insensitive did I not feel how responsible is the position I now occupy. Most of all I fear that I may seem in some degree to exaggerate, not the importance of the principles already ascertained, but the precision with which they can be shown to apply in the special cases of human physiology. In all the arts, perhaps most in the art of exposition, the hardest thing is to simplify the presentation by the omission of detail, and at the same time to leave the picture true to natural fact. So let me, therefore, at the outset say that in regard to almost every instance of principle I shall bring before you, though rule may be perceived, we have evidence of exceptions also. This is true even of the rules traced by minute analysis in the plants and animals amenable to experiment, and necessarily far more true of the human phenomena, which are brought within our reach for the most part by imperfect records. As in every department of physiological advance, we have first to trace the course of those great sweeping curves which lead to the recognition of ascertained law, and later those minor deviations, perhaps equally significant, which must hereafter be the subject of a further analysis.

The Mendelian Principle.

Now the essence of Mendelian principle is very easily expressed. It is, first, that in great measure the properties of organisms are due to the presence of distinct, detachable elements, separately transmitted in heredity; and secondly, that the parent cannot pass on to offspring an element—and consequently the corresponding property—which it does not itself possess. The determination or recognition of these elements by analytical breeding is one of the main objects of present-day genetic research. Each germ cell, ovum, or sperm may contain or be devoid of any of these elements; and since all ordinary animals and plants arise by the union of two germ cells in fertilisation, each resulting individual may obviously receive in fertilisation similar elements from both parents or from neither. In these cases the offspring is "pure" bred for the presence of the character in question, or for its absence. But it may be formed by the union of dissimilar germs, one containing the element, the other devoid of it, and in this case we call the individual crossbred, or heterozygous in that respect.

A population thus consists of three classes of individuals, those pure for the presence, having received two doses of an element; those pure for the absence of the element, having received none of it; and the crossbreds, which have received one dose only. From the physiological standpoint it is of great importance to distinguish the positive from the negative characteristic. But since it often happens that the full effect is produced in the organism by one dose only of a character, we have felt justified in regarding this positive effect as the sign or proof that it is caused by something present. A plant, for example, though crossbred for tallness, may be as tall as one purebred for tallness. Each dwarf plant, whatever be its parentage, can only produce dwarf offspring. Not having tallness it cannot transmit that property. A crossbred tall plant can, by self-fertilisation, produce both tall and dwarf offspring. Fowls with silky feathers cannot, if bred together, have offspring with normal feathers, but two birds, normal to all appearance, can, if they be crossbred in that respect, produce silky offspring.

At a later stage we will consider to what extent we are justified in thus discriminating between the positive and the negative characters, but for the present we will note that, as a matter of symbolical expression, the distinction is immaterial. Now, the organism produces germ cells representing in equal number the characteristics of the germ cells whence it arose. There is, as we call it, segregation between the elements introduced from the parent. The double structure of the soma is, when the germ cells are formed, resolved into the single structures of the germ cells. If the organism is pure bred in any respect, all its germ cells are alike in that respect. If it is cross-bred, its germ cells represent in equal numbers the positive or negative elements which were brought together in fertilisation. In consequence, the numbers of individuals resulting from the various possible forms of union follow regular arithmetical rules, and the proportions in which the several classes appear give us the means of tracing and identifying the various systems of descent.

Conditions showing Dominant Descent.

It was naturally with great interest that we began the examination of human pedigrees, and the result of that search soon showed that many of the more definite hereditary diseases and malformations follow one or other of the systems with which Mendelian analysis has familiarised us. The first condition thus recognised to have a simple Mendelian inheritance was the peculiar malformation known as brachydactyly described in America by Farabee. Another example is congenital cataract studied by Nettleship, to whose admirable researches we owe many of our most valuable and instructive pedigrees. Both these conditions descend as dominants. It is characteristic of them that unaffected members of the families do not transmit. Not having in them the critical element which causes the condition, they cannot pass it on to their posterity. In the human examples the individuals affected are almost always heterozygous, and hence among the children which are born to their marriages with normal persons we expect the affected and unaffected to be in equal numbers.

Since then such pedigrees have been recognised in abundance. The collection of such evidence we owe especially to Nettleship, Gossage, Drinkwater, Lundborg, Weil, Bulloch, and to many more also. Some of the conditions, which may be stated with fair confidence to descend commonly as dominants, are the following: Brachydactyly, claw-shaped extremities, cartilaginous exostoses, membranous cranio-cleido-dysostosis, hypoplasia of the teeth, diabetes insipidus, chronic trophoedema (generally).

Skin affections: Tylosis, epidermolysis bullosa, telangiectasis, hypotrichosis, porokeratosis, and xanthoma.

Ophthalmic diseases: Pre-senile cataract, ectopia lentis (sometimes), coloboma (sometimes), distichiasis, night-blindness (certain forms), and retinitis pigmentosa (sometimes).

Nervous diseases: Angio-neurotic œdema, tremor hereditarius, Huntington's chorea, ptosis, and probably several of the forms of spastic paralysis and of myo-atrophy.

Respecting nearly all these it may be remarked that exceptional cases, many undoubtedly authentic, are on record in which affected children have been born to parents actually or apparently normal. Many of these exceptions are undoubtedly genuine and serious, but others may be ascribed to irregularities in the age of incidence, and to mistakes as to slight cases.

Another difficulty arises from the fact that the numbers are frequently irregular. This is in part caused by imperfection in the records. In part, however, I think these aberrations point to real peculiarities in the process of segregation. We know well that in certain plants like wheat and peas the expected numbers appear with great constancy, but in others, as stocks and the primulas, long "runs" are so common that smooth results are only obtained by the summation of large series of observations. We are perhaps right in conceiving the germinal tissue of a heterozygote as an emulsion of the two types, sometimes coarse, sometimes fine, and the degree of smoothness of the results may be an indication of its state in this respect.

In regard to a large group of diseases of nervous origin, such as Friedreich's disease, Thomsen's disease, and others, these sources of difficulty are especially serious, and though from study of many genealogies I have come to the conclusion that most of them are essentially dominants, I offer this opinion with reserve.

Recessive Conditions.

Of recessive conditions in man we have less abundant evidence. Inasmuch as they usually appear from the unions of parents both apparently normal, though heterozygous for the condition, their occurrence is rare and sporadic. Lundborg has shown with great probability that paralysis agitans is one of these. The constant intermarriage of families in the valleys of Sweden, Norway, and the Alps gives the best opportunity for the study of this form of descent. Lately, also, the American students of genetics have produced evidence making it clear that feeble-mindedness has at least one of the marked features of a recessive condition. When both parents are feeble-minded they have no normal children. It is nevertheless difficult to regard this condition as a simple recessive, for unions of the feeble-minded with normal parents almost always produce some feeble-minded children. Among our experimental families of plants and animals there are mysterious examples somewhat comparable with those, but the exact nature of the complication is still obscure.

Other conditions which exhibit a behaviour characteristic of recessives are albinism, myoclonus, epilepsy, and alkaptonuria. They may all appear in the children of normal persons, with special frequency as the result of marriages of related parents, and there can be no reasonable doubt that these conditions are due to the loss of some factor present in normal persons.

At this stage attention should be called to a remarkable group of cases in which the appearance of abnormality may almost without doubt be regarded as partially dependent on the conditions to which the soma is subjected Of these I may mention in particular some of the congenital abnormalities, such as hallux valgus, and some of the congenital deformities of the joints, as, for example, dislocation of the hip or of the radius In these cases we meet the curious fact that whereas the condition most usually appears in the offspring of normal parents, it may, in certain families, be transmitted from parent to offspring as a dominant I am inclined to compare these phenomena with those so often witnessed in incubating eggs When the incubators are not running uniformly many of the chickens are born with deformed feet Such abnormality, however, is found with especial frequency in particular strains of birds, though eggs from other strains exposed to the same conditions may give perfectly normal results The liability is the thing transmitted, but without the appropriate conditions the effect is not produced

DESCENT OF SEX LIMITED TYPE

The next group of cases to which I would call your attention is one in which the descent of the abnormality is limited wholly or partially by sex Of these the best known examples are those of the descent of colour blindness, hæmophilia, and one of the forms of nystagmus

In regard to colour blindness, the fact has long been known that males are affected with exceptional frequency Colour blindness among women is decidedly rare Horner was I think, the first to call attention to the fact that in the pedigrees of this condition there is remarkable regularity Normal women transmit the affection to their sons whereas colour blind males with rare exceptions have only normal offspring It is possible to interpret these phenomena by the suggestion to which several of us inclined some years ago that colour blindness is a dominant inasmuch as the normal males cannot transmit it We were led to regard the condition as due to the presence of something inhibiting normal colour sense rather than to the absence of the factor to which that sense is due Further investigation has however, thrown doubt on this simple account As to the descent however, there is no doubt that the sons of colour blind males do not inherit the peculiarity, and therefore cannot transmit it The daughters of colour blind fathers inherit it and though it does not appear in them probably all of them have the power of transmitting it to their sons Knowledge derived from direct experimental breeding of various animals has provided a very remarkable scheme by which this course of descent can be represented factorially C [illegible] the inheritance [illegible] cross is made [illegible]ll the chickens come silver, but when a reciprocal cross is made, a silver hen being mated with a golden cock, the pullets come golden but the cockerels come silver In this case we must regard the silver as dependent on the presence of dominant factors, and the golden as due to its absences The silver male is pure for silver SS having received that factor from both parents but no pure silver hen exists The hen is heterozygous for silver and may be represented as Ss We must further regard the hen as also heterozygous for femaleness Ff In the formation of the eggs there is what we call repulsion between the factor F and the factor S, the two are not present together in any egg Those eggs which are destined to become males carry factor S, and those eggs which are destined to become females carry factor F Now in colour blindness the repulsion that has been so clearly proved between these factors may be represented as acting in the germ cells of the male between the factor for maleness and the factor for colour blindness, such that the sperms destined to become males carry factor M but do not carry the factor for colour blindness which passes entirely into those sperms which are destined to produce females It is evident that females heterozygous for colour blindness are not colour blind and that colour blind females can only be produced by the meeting of two germ cells both bearing the affection

It follows from the hypothesis that the sons of colour blind women will all be colour blind and all the records of such families with which I am acquainted with a single doubtful exception are in agreement in that the sons of such women were all colour blind It is practically certain that the same system of descent holds for a form of nystagmus, respecting which Nettleship has recently collected some important genealogies As to the other sex limited conditions in man I can only say a few words Hæmophilia is the most familiarly known of these It is likely that the condition in men follows the same descent as that established in the cases of colour blindness, but inasmuch as males affected with the condition very rarely live to the age of puberty, little is known of their powers of transmission

I have already spoken of night blindness as a condition which descends as a dominant, but it is very interesting that Nettleship has lately published certain pedigrees of night blindness in which the descent is of the sex limited type This particular night blindness is apparently associated always with a high degree of myopia, and I suppose there can be little doubt that the recognition of the genetic distinction will lead to the discrimination of pathological differences also

THE QUESTION OF INHIBITING FACTORS

At an earlier stage of this lecture I mentioned a doubt as to the justice of the inference that the characteristics which behave as dominants are due to the presence of factors, and to that point I must now return In our experimental studies of animals and plants we are aware that certain negative characteristics may be produced not by the absence of a quality, but by the presence of some factor which inhibits its expression In illustration I may give as an example the Chinese primrose These plants may have their flowers coloured or white and we are aware that the white may owe their whiteness in certain cases to the absence of colour—in which case, on a cross with the coloured form, the offspring are all coloured, whereas other whites contain something which destroys or inhibits the development of the pigment factors contained in them

In view of these examples the question fairly arises whether some of the dominants whose descent I have traced in human pedigrees may not in reality be due to the absence of some factor which in normal persons prevents such development This suggestion was prominently brought forward by Doncaster in regard to colour blindness He lately suggested a scheme according to which we should regard all normal males of the population as heterozygous Nn for the factor N normality and all ordinary females as homozygous NN for the same factor In either case the course of the descent would both qualitatively and numerically, be the same Between these two methods of representation we cannot as yet distinguish The point is of great importance in another respect The question will be prominent in most of your minds, whence do these dominant factors come? Whereas it is comparatively easy to conceive some process by which some elements of the composition may be lost, we are quite unable to suggest any source from which a factor may be derived or any mode by which it may be taken into the genetic system of the organism We have been accustomed to speak of factors as being added to, or subtracted from, the sum total of an individual composition, but as to the actual origin of new dominants there is very little contemporary evidence

In the case of those animals such as the fowl the wild original of which we think we know many factors exist in our domesticated breeds which are not possessed by any of the wild species No wild species, for example, has the complicated combs that we know in our domesticated breeds None has the dominant white colour of the leghorn, and many other such instances might be given How have these elements been added to the composition of the fowl?

The problem is exactly parallel to that constituted by the occurrence of brachydactyly or night blindness in man We can only trace back these peculiarities to a single individual of whose origin nothing is known, but whence did he derive the factor to which he owes his peculiarity? We may compare these cases with those of the origin of an infectious disease, such as typhoid fever When a medical officer of health recognises typhoid in his district he knows that it must have come from some definite source of infection, and but for one feature in the descent of dominants we might be tempted to suggest that they also arose through the introduction of some element from without into the system I see no *a priori* impossibility in such a belief, but in these dominants we know that the distribution among the germ cells is approximately symmetrical, and nothing that we know of animals and plants justifies the suggestion that a foreign element can be so treated in gametogenesis. Perverse as such a suggestion may appear, I do not think we should close our minds to the possibility that these dominants arise by a process of loss of some inhibiting factor. Until we have some far more direct method of recognising the presence of factors this suggestion cannot be positively gainsaid.

Let me call your attention also to the inference which this suggestion would have on our conceptions of evolution. We might extend the same reasoning to all cases of genetic variation, and thus conceive of all alike as due to loss of elements present in the original complex. For all practical purposes of symbolic expression we can still continue to use in our analyses the modes of representation hitherto adopted, but we must not, merely on the ground of apparent perversity, refuse to admit that the lines of argument here indicated may prove sound.

INHERITANCE OF NORMAL CHARACTERISTICS.

Much as we now know of the inheritance of these abnormal characters, some common, others rare, we know little of the descent of the normal characteristics of an ordinary human population. Indeed, the only characteristics as to the genetic nature of which we have clear evidence are the colour of the iris and, to some extent, the colour of the hair. Our knowledge of these is derived from the work of Hurst; he it was who first succeeded in determining the inheritance of eye colour, which had long been a puzzle to anthropologists. The facts which he collected clearly showed that the presence of pigment on the front of the iris—the condition commonly known as brown or black eyes—is a dominant, whereas the absence of this pigment—the eyes we variously call grey or blue—is a recessive. And so far, though I anticipate the possibility of exceptions, no example has yet been produced of two parents critically known to have blue eyes producing offspring with brown or black eyes. As similarly shown, red hair behaves as a recessive, and I understand that at the forthcoming meeting of the British Association in Birmingham he will arrange a demonstration of this as exemplified by the inhabitants of a Midland village.

From the records of portraits of the Royal house of Hapsburg it is clear that the familiar facial peculiarities of the family behave with fair regularity as a dominant, and there are indications that several of the artistic gifts follow with some accuracy the course characteristic of recessives. By careful observation and record it would undoubtedly be easy to extend the list.

DESCENT OF INSANITY AND OTHER CONDITIONS.

Referring to the descent of various forms of insanity nothing has been made out with certainty with the exceptions that I have mentioned: hereditary chorea, which behaves as a dominant, and the condition somewhat vaguely described as feeble-mindedness, which behaves as a recessive. The genetic analysis of insanity is at the present time practically impossible from the fact that the diagnosis of the various forms of insanity is by no means clear, and also from the fact that the conditions of life have obviously much to do with the development of such weaknesses. Similar difficulties arise in regard to deaf-mutism. It is not in question that this condition is very often transmitted, but forms of deafness are so various, and there is such uncertainty as to the nature of the condition in any given case, that we cannot expect to perceive the operation of any regular system here. It is not impossible, also, that in regard to the descent of liability to infectious disease we may hereafter trace in man rules similar to those which have now been established in certain plants, especially by Biffen.

THE NATURE AND TIME OF SEGREGATION.

I propose now briefly to allude to some other significant aspects of these results. First, as to the nature of segregation. This, I think, we must regard as a process comparable with the mechanical separation of substances which will not mix, or mix imperfectly; whereas some factors are continually transmitted in their entirety, others are liable to be broken up by what I regard as a process of quantitative fraction occurring in the mechanical dissociation of the elements at certain critical cell divisions. As to which are the critical cell divisions we have no clear indication. I cannot agree with those of my colleagues who think segregation must occur exclusively in the maturation processes. The case of the double Stock, in which the whole male side of the plant differs genetically from the female side, as proved by Miss Saunders, shows almost conclusively that segregation may occur in somatic divisions. It is also difficult otherwise to interpret the fact that in certain cases the parental combination influences the distribution of factors among the gametes so that the distribution among the grandchildren is different according to the way in which the characters were combined in their grandparents. Into these details I cannot now enter.

THE DEFINITENESS AND FIXITY OF THE LAWS OF DESCENT.

The tendency of our work, as you will perceive, is more and more to exhibit the definiteness and fixity of the laws of descent. The medical man, justly proud of what he can do to make good bodily shortcomings, looks naturally to the conditions of life as the influences which chiefly determine destiny. The statesman, to whom physiological fact is a mystery that he rarely feels any desire to explore, inclines naturally to a similar conception of life. There are signs that more true views are beginning to prevail. It is impossible to study such pedigrees as those of night blindness, in which a condition introduced by one individual into a community hundreds of years ago continues to be perpetuated according to definite arithmetical rules among a remote posterity, without being impressed with the fact that whatever influences may be brought to bear by hygiene or by education the ultimate decision rests with the germ cells. Evolutionary change is effected not so much by gradual transformation of masses under ameliorating or detrimental conditions, but in the main by the occurrence of individual and sporadic variation.

EUGENICS AND LEGISLATION.

It is beyond my province to discuss in detail the practical question denoted by the word eugenics. Those who are engaged in the work of physiological analysis probably do well to keep clear of those distractions. The direction, however, in which genetic research points is not difficult to determine. Sir James Crichton-Browne has discussed at this Congress the striking percentage increase of lunacy in recent decades, and, as always when such topics are under consideration, there are persons disposed to lay the blame on the conditions of life, the severity of the modern struggle, a greater or less consumption of alcohol or other drugs; and so forth; those, however, who have some knowledge of genetic physiology are aware that the whole force of modern science and legislation has hitherto been exercised in the preservation of defective strains in our midst, and will not feel serious hesitation as to the true cause of the increase.

The Mental Deficiency Bill we recognise as, in principle, a wise beginning of reform, but, on the other hand, we cannot hear without disquietude of the violent measures that are being adopted in certain parts of the United States with similar objects. It is one thing to check reproduction of hopeless defectives, but another to organise a wholesale tampering with the structure of the population, such as will follow if any marriage not regarded by officials as eugenic is liable to prohibition. This measure, we are told, is actually proposed in some of the States in America. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and the arts will fare in a community constructed according to the ideals of State Legislature.

Philologists tell us that by an irony of development the word "dull" comes from the same original which in Dutch has become "dol"—mad, and is better known to most of us in the German equivalent "toll." But I anticipate that, connected as the ideas may be, we might by ridding our community of mania leave it gravely infected with dulness. There are other no less obvious considerations which I might develop, but I trust I have said enough to show that in the experimental analysis of genetics we have an instrument of novel and extraordinary power, and I am not alone in foreseeing that genetic science must profoundly influence the course of human thought and ultimately the conduct of society.

An Address

ON

THE RELATIONSHIP BETWEEN MEDICINE AND PUBLIC HEALTH.

Delivered before the Seventeenth International Congress of Medicine on Tuesday, August 12th, 1913,

BY THE RIGHT HON. JOHN BURNS, M.P.,

PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—I much appreciate this opportunity of addressing an audience which is representative of the medical culture of the entire civilised world, an audience of men who have assembled to interchange experience, to report progress, and to give and receive mutual enlightenment in their glorious work for the benefit of suffering humanity.

My intention in addressing you to-day is, in the first place, to bear my testimony to the immense debt of gratitude owing to you by the whole of humanity. Arising out of this my remarks will in the main be concerned with the intimate relationship which exists between medicine and public health.

When speaking of the marvellous lowering that has taken place in the death-rate in this country, one is perhaps too apt to remember only social and sanitary progress as the explanation of this great change. My address to you to-day may, I trust, serve to show the appreciation by the public of the fact that to a very large extent humanity is indebted for *the saving of life and of suffering that has occurred to the* vast improvements in the science of cure as well as of prevention of disease,

As a layman, I cannot attempt to set out the details of the marvellous progress of medicine, especially in its relation to public health, since you met last in London in 1881, and in the years preceding that meeting. Were I to attempt that task not a single nationality represented here would fail to claim names of honour in the record. My imperfect record can give only a few of the names that will be familiar to you: *Norway has had its* Hansen, *Russia its Pawlov and* Metschnikoff (lent to France), Austro-Hungary its Semmelweis, France its Pasteur, Budin, and Roux, Italy its Celli and Marchiafava, Belgium its Bordet, Holland its Eijkman, Japan its Takaki and Kitasato, Germany its Koch and Ehrlich, America its Oliver Wendell Holmes, Morton, Read, Carroll, and Flexner, and the United Kingdom its Farr, Simpson, Jenner, Lister, Manson, and Ross.

I do not forget that I am here as the representative of public health in this country, and my remarks will be made chiefly from that standpoint. Although no impending triumphs of preventive medicine are likely to cause your glorious work in assuaging suffering to cease, I look forward to the time, which has indeed already partially come, when the family doctor will be engaged in advising as to means for preventing disease, in dissuading from habits inimical to health, in preventing overwork or laziness—both serious enemies of mankind,—in reporting external conditions, whether of work or leisure, needing to be amended, and still more often in discovering the early symptoms of illness which if neglected may produce serious disease, and in securing the removal of their cause.

We have already glimpses of important directions in which this ideal of future work is being realised. I refer to the modern campaigns against tuberculosis, in aid of child welfare, and in connexion with school medical inspection, which are rapidly becoming part of the national life in this and in other countries. The national system of medical inspection of scholars, and the "following up" of disease or disorder discovered at these inspections, is a work of the highest national importance. It is not only important in itself, but also in discovering a large amount of neglected illness, which should have received attention before school-life, and to which child welfare work is now being increasingly directed. In all these relationships we are [illegible] the essential continuity and [illegible] ment and prevention, in our [illegible]

THE PAST SAVING OF LIFE.

Some conception of the progress already secured by the application of science, especially medical and sanitary science, to the problem of healthy living—and I trust at the same time some impetus to further triumphs on the part of your profession—may be given by the comparison to which I invite your consideration of the average experience of England and Wales during the three years 1909–11 as compared with its experience during three years based on the average experience of 1871–80. In the three years 1909–11, 1,529,060 deaths occurred in England and Wales. This number is 772,811 fewer than would have occurred had the average death-rate of 1871–80 held good for these three years. [illegible] the largest share of this s[illegible] has occurred in the working [illegible] us secured to the economic capacity of the nation has been on a gigantic scale.

Comparing the aggregate experience of the three years 1909–11 in England and Wales with the experience of three years based on the average death-rate for the decennium 1871–80:—

The saving of life in these 3 years at ages—

0–1	was over	98,000	persons.
1–5	"	126,000	"
5–15	"	44,000	"
15–25	"	58,000	"
25–35	"	78,000	"
35–45	"	77,000	"
45–55	"	50,000	"
55 and over	"	114,000	"

The saving under certain special diseases is set out below. Comparing the aggregate experience of the three years 1909–11 with the experience of three years of the decennium 1871–80:—

The saving of life in 3 years in respect of—

Small-pox...	was	25,463
Measles	"	7,824
Scarlet fever	"	69,974
Whooping-cough...	"	30,864
Fevers (typhus, enteric, simple continued fever)...	"	45,339
Puerperal fever	"	3,941
Diarrhœa, dysentery, and cholera	"	32,996
Pulmonary tuberculosis	"	114,799
Other tuberculous diseases	"	56,338
Total saving on these diseases		367,008

Nearly half the total saving has occurred under the heading of the diseases here enumerated. If we take the whole of the 32 years 1881 to 1912, and considered the saving of life during this period, the figures are truly colossal. During these 32 years, in England and Wales 17,083,751 deaths occurred. Had the relatively high death-rates of 1871–80 continued during each of these 32 years with the populations of each of these years, 3,942,000 more deaths would have occurred than were actually experienced.

Expenditure of local authorities.—It is interesting to contrast the saving of life actually experienced during the last 32 years with the expenditure incurred by local authorities (sanitary and Poor-law authorities, county councils, joint hospital boards, &c.) during the 40 years 1870 to 1909–10. During this period the total expenditure of all local authorities in England and Wales exceeded 3000 millions sterling, of which amount over 500 millions was obtained on loan since the year 1882–3. At the end of 1909–10 the total indebtedness of local authorities exceeded 536 millions sterling, or about seven-tenths of the amount of the National Debt.

In the following table an analysis is made of the main items of loans by local authorities which may be regarded as directly or indirectly concerns of public health, and a comparison is made with the corresponding items for 1883-4. The figures are stated in round numbers.

	1883-4 £	1909-10 £
Total outstanding debt for all purposes ...	165,000,000 ...	536,000,000
Outstanding debt incurred in respect of—		
Schools	14,000,000 ...	46,000,000
Highways, &c....	17,000,000 ...	57,000,000
Waterworks	29,000,000 ...	127,000,000[1]
Sewerage and sewage disposal	15,000,000 ...	42,000,000
Housing	3,500,000 ...	10,800,000
Hospitals	182,000 ...	4,600,000[2]

The above statement does not include municipal and Poor-law expenditure on the supply of gas, electricity, tramways, harbours, on asylums, police, markets, workhouses, &c.

Since 1882-3 local authorities have expended out of rates and by means of loans the following sums :—

Education	£320,000,000
Highways, bridges, and ferries	289,000,000
Waterworks	131,000,000
Sewerage and sewage disposal	89,000,000
Hospitals (not including Metropolitan Asylums Board and workhouse infirmaries)	20,000,000
Housing of working classes	11,000,000
	£860,000,000

A large proportion of the total sums mentioned above has been expended by local authorities on objects which are unrelated to the public health, though they may have increased the public comfort. The expenditure on education has doubtless helped the public health as well as national efficiency, though only a share of this expenditure should be allotted to the former heading. If we assume that 500 millions sterling have been expended which can be rightly associated with the saving of nearly 4,000,000 lives which has occurred during the last 32 years, and if we take the average economic value of a life saved—i.e., prolonged to an older age—to be £150, a very modest estimate, evidently even this large sum can be regarded as having been a profitable investment. It has to be remembered that the benefit of many of the large capital expenditures on water-supplies, sewerage, housing, hospitals, &c., will be reaped even more in the future than in the record of the past.

Periods of progress.—How has the saving of life already achieved been secured? No complete answer can be given in a few sentences, and perhaps my best plan is to proceed by examples, drawing inferences from the historical facts of medicine, which are open to the layman as well as to the doctor. The progress that has been made in this country during the nineteenth century comes within two overlapping periods. The first of these is the period of what may be called crude generalisations; the second is the period in which progress as to each disease has been based on the actual results of scientific investigation.

Motives of progress.—In the progress of the earlier period—and happily the same motives continue to be potent now—motives of philanthropy, panic, and economic necessity combined to secure, though too slowly, the needed sanitary reform. I cannot stay to discuss the high value attaching to the devoted efforts of such men and women as John Howard and Elizabeth Fry, of Sadler, Oastler, and their collaborators, of Lord Shaftesbury, of Charles Dickens, of Charles Kingsley, and in official life of Edwin Chadwick, of the Poor-law Board, who succeeded in arousing England and securing improvement in the conditions of work and life, and even of imprisonment; nor of such men as David Livingstone, who did so much to "heal the open sore of the world" constituted by slavery, to open up tropical countries and thus to prepare the way for the recent triumphs of tropical medicine. It is not without interest to note that the earliest successful attempts to enforce sanitation and to secure healthy conditions of work were in connexion with factory work. This involved the appointment of paid inspectors, introduced by the Act of 1833. Factory inspectors preceded medical officers of health and sanitary inspectors; and under the Home Office their beneficent work in industrial hygiene has, year by year, become more far-reaching and effective.

Next to philanthropy, panic has been, perhaps, the most efficient factor in early sanitary progress. So far as this country is concerned, cholera has been far from an unmixed evil. In 1831-2 it caused 41,544 deaths in the United Kingdom; and this led to spasmodic efforts on the part of many local boards of health to sweep the Augean stables of insalubrity. The lesson was not, however, sufficiently learnt until later epidemics of the same disease occurred, followed by the creation of local sanitary authorities, and the expenditure of large sums on schemes of water-supply and sewerage. The economic value of health and the wastefulness of premature sickness and death are not even now sufficiently realised; but the steadily increasing readiness of local authorities to expend money on sanitary measures indicates our increasing realisation of the truth that national health is national wealth.

THE DOCTRINE THAT DIRT MAKES DISEASE.

It was the great merit of the work of Edwin Chadwick that he added to philanthropy the important economic motive, showing through numerous local investigations the regular association between unhealthy conditions and disease, and the production of pauperism by means of disease. Of the value of this generalisation we are now fully advised. At least one-half of the total cost of pauperism in recent years is stated to be swallowed up in direct dealing with sickness, and to this must be added the indirect contributions of sickness, through deaths of bread-winners, and the host of by-products of sickness with which disease helps to populate our workhouses.

Chadwick was largely influenced by the teaching of Dr. Southwood Smith and his collaborators that epidemic diseases as a whole are the direct consequence of local insanitary conditions. This valuable generalisation, as we now know, needs a modified and more accurate statement, specialised for each individual disease. In its original form, however, it embodied a realisation of the immense power of the environment to make or mar the national life; it secured the beginning of our national improvements, and it laid the foundation of the house of *health* which as a nation we are building.

Typhus fever.—The value of the teaching of this doctrine is shown in the almost complete annihilation of typhus fever and the rapid decline in amount of enteric fever. The history of typhus is a romance in sanitation, from which the principles and practice of preventive medicine could be adequately taught. It occurred under conditions of dirt and overcrowding; but apparently it arose only by direct infection from person to person. It was spread, like small-pox, by vagrants from parish to parish, repeatedly brought by them from Ireland to England, and it was not brought under control until the migrations of vagrants had been limited, the sick had been segregated in hospitals from the healthy, "contacts" had been kept under adequate supervision, and the houses harbouring the disease had been disinfected and the vermin therein destroyed. In many instances the courts and alleys, the favourite lurking-places of the disease, were also swept away. Consider the following figures: In the ten years 1871-80, in Ireland, 7495 deaths were returned as due to typhus fever, in the three years 1909-11 the number had fallen to 143. In England and Wales, in the ten years 1871-80, 13,975 deaths were caused by typhus fever, in the three years 1909-11, with a much larger population, the number thus caused was 30.

Enteric fever.—The history of enteric fever is also very striking. In England and Wales in the 10 years 1871-80 78,421 deaths were ascribed to this disease; in the three years 1909-11 its greater population had 6447 deaths from the same disease, a number far too large, and in some measure due to the fact that some local sanitary authorities still do not realise to the full extent the importance of the generalisation that filth implies disease. The importance of this generalisation is shown by the excess of this disease in towns in which privy and ashpit systems continue and the water-carriage system of sewerage has not been installed. When our medical officers of health—the advance guard in our army of sanitation, and our advisers as to the best line of action—came to investigate the facts they ascertained that explosive epidemics of this disease are nearly always caused by specific excremental contamination of a public water-supply or of a milk-supply; and the knowledge of these facts conveyed to local sanitary authorities throughout the country has induced them to expend enormous sums on public water supplies and sewerage, and to the adoption of precautions in connexion with our milk supplies With more accurate knowledge of the methods of spread of enteric fever it became clear that the nursing of enteric fever under the home conditions of the poor involved further spread of the disease, and to the use of isolation hospitals must be ascribed a large share in the realised reduction of enteric fever, as also of typhus fever In recent years it has been shown that there is a residuum of enteric fever not explicable by origin from the above mentioned sources, and other smaller sources of infection have been traced, including *chronic ' carrier cases "* Contaminated shell fish, especially mussels and oysters, have been shown to be responsible for a considerable amount of this disease and I have at the present time under consideration the issue of regulations which will give sanitary authorities additional control over this source of infection There is reason to expect that enteric fever will ere long be known, in fully civilised countries like typhus fever, scurvy, and leprosy, as in the main an historical curiosity

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[1] Including loans of Metropolitan Water Board.

[2] Does not include Poor-law institutions or Metropolitan Asylums Board institutions

STAGES IN REGISTRATION OF DISEASE

The history of registration of disease is inseparably associated with that of public health and it is convenient at this point to refer to this important subject Until the ugly facts as to excessive mortality under conditions of filth and overcrowding could be persistently obtruded upon the public mind reform was difficult, sometimes impossible The need of registration of deaths was realised as an instrument of sanitary progress—the epidemic of cholera in 1831 2 giving a great impetus in this direction—and political considerations aided its enactment

It is not the least of Chadwick s great services to the State that he discovered William Farr the humble apothecary, and placed him in charge of our national vital statistics The series of reports issued by Farr have had an immense influence in promoting the public health They threw the light of publicity on the towns and parts of towns in which fever and consumption throve they enabled the moral of great epidemics to be pointed, and painstaking investigations into their causation to be made by medical officers of health and others The later reports by Drs Ogle Tatham, and Stevenson have worthily continued the series initiated by Farr In particular the decennial supplements *have thrown valuable light on the incidence of industrial* mortality As time went on it became clear that registration of deaths gave a very imperfect view of the prevalence of disease, and that so far as infectious diseases were concerned valuable time was lost when preventive action could only be taken after the patient s death Death registration told of *the total wrecks which had occurred during the storm*, it gave no information as to early mishaps enabling others to trim their vessels and thus weather through It gave a list of killed in battle, not of the wounded also

Progress occurred step by step, in our characteristic British fashion Pioneer attempts were made by medical men in a number of districts to secure the voluntary notification of different forms of illness The gradual failure of these attempts led to agitation in favour of the compulsory notification of the chief acute infectious diseases Local powers for this purpose were secured by a few enterprising towns in 1889, an Adoptive Act for the whole country was passed, and in 1899, by a further Act, the notification of these diseases was made compulsory throughout England and Wales From time to time extensions of the list have been made by local authorities and by the Local Government Board, among the most recent additions have been the Orders by which the notification of poliomyelitis and cerebro spinal fever has been made generally obligatory It may be hoped that the more precise information thus obtained will throw new light on the conditions governing the spread of these serious diseases In a large number of districts ophthalmia of the newly born is already notifiable, and I am about to issue an Order making this disease notifiable in every sanitary area, and enabling sanitary authorities to provide the prompt medical aid and nursing which are required to prevent this serious cause of blindness in childhood

But you will, I think, agree with me that the most important extension of the principle of notification has been in regard to tuberculosis The knowledge that this disease is communicable, and the importance, even apart from the fact of communicability, of having exact knowledge of its special haunts, and of its prevalence in different industries and among the poor living in crowded streets and courts, have enabled me step by step, by means of Departmental Orders, to apply the principle of compulsory notification to all forms of this disease In order that public opinion might confirm the proposals, and to ensure that notification would be effective as well as merely prescribed, action was deliberately taken in stages On Dec 18th 1908, an Order was issued making obligatory from Jan 1st, 1909, the notification of cases of pulmonary tuberculosis in Poor law practice This was followed on March 22nd, 1911, by an *Order making the notification of cases of pulmonary tuberculosis* in hospital practice obligatory from May 1st, 1911 On Nov 15th 1911 an Order was issued making it obligatory from Jan 1st, 1912 on all medical practitioners throughout England and Wales to notify cases of pulmonary tuberculosis occurring in their practice whether public or private, and on Dec 19th, 1912, this duty was extended from Feb 1st, 1913 to all forms of tuberculosis

I have made careful inquiries, both from private practitioners and from hospital physicians, and have been much gratified to find that each step in the extension of notification has been welcomed by them, and that instances in which hardships to patients have occurred as the result of notification are very few indeed This is due in part to the fact that notification is confidential in character, but also, and I believe chiefly, because the notification has not only enabled investigation of sources of infection to be made and precautionary measures to be adopted but has also put the patient in the way to receive more efficient treatment Tuberculosis is the one disease in which the fact that measures of treatment and of prevention are to a large extent identical is becoming fully realised, and the important endowment of the treatment of this disease in connexion with the National Insurance Act will enable local authorities and their officers to take active measures both of prevention and treatment on a larger scale than had been previously practicable

During the last few years a weekly list of cases of certain imported diseases in foreign ports has been distributed by the Local Government Board to port medical officers of health, thus giving them warning of the points from which the importation of disease is particularly to be feared By an Order of the Local Government Board, dated Dec 13th, 1910, every medical officer of health has been required to send to the Board at the end of each week a list of the cases of the different infectious diseases notified in his area during the week, and during the following week a complete statement of these cases in each and all the 1800 sanitary areas in England and Wales is distributed by the Board, of which I am the head to each of the medical officers of health of *these areas for their information* For 1911 the first statistical return was prepared in my medical department showing the rate of sickness for each notifiable disease in every sanitary area and by this means there is now accumulating a more accurate record of the sickness of each district than was previously possible The influence of such information in securing investigation into the sources of disease and in enabling pressure to be brought to bear on reluctant or obstructive authorities will be very great

No mention of notification would be complete which omitted reference *to the Notification of Births Act* This Act has enabled medical officers of health to obtain the information as to births within 36 hours of their occurrence, whereas registration may be delayed for six weeks, and by this means early visits can be made in suitable cases by means of nurses or health visitors competent to give useful advice I am hopeful that this Act will ere long be adopted in every sanitary area Already it applies to more than half of the total population of England and Wales

I must hasten on to make a few remarks on what I will call

THE SCIENTIFIC PERIOD OF DISEASE PREVENTION

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against these evils still needs to be pursued with unabated energy. Each year, however, our knowledge of the causation of individual diseases is becoming more exact; and our warfare against disease can be pursued not only with what may be described as the bludgeon, but also with arms of exactitude not previously available.

Louis Pasteur.—The pioneer of this period, who showed the way along which you are now so successfully travelling, was one who was on the platform of the meeting of this International Congress in August, 1881, when last it met in London. He was then your most honoured member, and the immense possibilities of future prevention of disease opened out by him were already being realised. Need I say that I refer to Louis Pasteur, a name to be ever held in reverence as that of the father of scientific preventive medicine? Although himself originally a chemist, he has exercised a greater influence on medicine than any other man since Harvey. He succeeded in destroying the idea of spontaneous generation, and in establishing on a firm basis the germ theory of disease. As has been well said, he associated the faith of an apostle with the inquiring patience of a scientist. With indomitable courage he pursued his investigations, undeterred by obstacles and opposition. When his friends said to him, "Studies of that sort require much courage," his simple answer was, "What about duty?" It would ill beseem me as a layman to attempt before an audience of medical men, including our distinguished French *confrères*, to describe the work of Pasteur. I like to think of it especially as leading up to and inspiring that supremely important work of Lister which has revolutionised surgery and saved an untold number of lives.

Lister.—May I be excused for dwelling for a moment or two on Lister's work and its results? Born in 1827, in 1860 he became surgeon at the Glasgow General Infirmary, where, as elsewhere, the surgical wards were ravaged by erysipelas, pyæmia, and hospital gangrene. The introduction of ether as an anæsthetic by Morton in America, and the later introduction of chloroform by Simpson in 1847—although they prevented an enormous amount of suffering—had temporarily increased the mortality of surgery by rendering operations painless, and therefore more frequent, in wards in which septic infection prevailed. In those days suppuration was regarded as a normal process, now when it occurs as the result of an operation it is regarded as a grave reflection on the surgeon in whose practice it appears. Applying Pasteur's discovery that putrefactive fermentation is due to microbes introduced from without Lister, by antiseptic methods, without altered sanitation of his wards, so improved their record that in 1867 he was able to report that during the preceding nine months not a single case of erysipelas, pyæmia, or gangrene had occurred among his patients.

Listerism.—It is impossible to express statistically the saving of life and suffering effected through Lister's work, but its magnitude is well known to all of you. Operations which in former times were needed to save life were commonly followed by sepsis and death. A major operation for a compound fracture or other serious injury often meant merely the postponement for a few days of the fatal result. In many hospitals, and sometimes for long periods, each surgical patient in succession was liable to be attacked by erysipelas, pyæmia, or gangrene. Little wonder then that hospitals were regarded as death-traps, and an operation in the poorest home often had a greater prospect of success than a similar operation by a distinguished surgeon in our largest and best hospitals. The hospital and its architect were commonly blamed for this, and the fact that death lurked in the skin of the patient himself, in the finger-nails of the surgeon, and in the sponges of the nurse, was unrealised. Listerism has changed all this. It has done more. It has made possible triumphs of cure not previously dreamt of. Abdominal diseases and diseases of the brain and its coverings, formerly inevitably fatal, have come within the range of treatment, and the possibilities of saving and prolonging life have been immensely increased. The following comparison of the experiences of two of the largest metropolitan hospitals shows the greater extent to which operative assistance can now be given to patients. In 1878, 15·2 per cent. of the total surgical patients in these hospitals (4531 in number), and in 1911, 79·1 per cent. of the total surgical patients in these hospitals (6490 in number), received operative treatment. As a by-product of Listerism there has been an almost incalculable saving of pain, directly in connexion with the progress of injuries and operations, and indirectly in consequence of the number of painful conditions which can now be attacked by operative measures. We may, therefore, add the name of Lister to those of pain destroyers, which include also Morton and Simpson, the introducers of ether and chloroform respectively as anæsthetics, and the modern chemists who have introduced the wonderful series of drugs producing local anæsthesia.

Semmelweis.—From Listerism we may pass on to mention puerperal fever, a specially urgent case for the application of Listerism, an application which—if the teaching of Semmelweis had been appreciated—would have been adopted before Lister. As early as 1847 Semmelweis demonstrated that puerperal fever was caused in the lying-in wards in his clinic at Vienna by contact infection, brought by students who were also engaged in the post-mortem or dissecting-room, or in surgical wards in which there were open wounds. In 1849 Semmelweis's work was brought before a London medical society. Unhappily, its importance was not realised, and so the triumph of antisepticism and asepticism in midwifery was postponed; for the child-bearing mother the full realisation of freedom from risk of sepsis, which is a fair claim for every expectant mother to make, is still far from being realised. Our national figures show improvement in the death-rate from puerperal sepsis; a less improvement in regard to the accidents and diseases of pregnancy and childbirth. Even in regard to puerperal sepsis alone the record is not entirely satisfactory.

From puerperal fever and the accidents of childbirth—

In the ten years	1877-86	one mother died to	226 births.
,, ,,	1887-96	,, ,,	197 ,,
,, ,,	1897-1906	,, ,,	228 ,,
In the year	1907	,, ,,	261 ,,
,, ,,	1908	,, ,,	280 ,,
,, ,,	1909	,, ,,	270 ,,
,, ,,	1910	,, ,,	281 ,,
,, ,,	1911	,, ,,	262 ,,

So far as London is concerned, I have recently authorised the admission of patients suffering from puerperal fever into the hospitals of the Metropolitan Asylums Board; and there is no reason why, with an improved service of midwives, better nursing, and the strictest asepticism in practice, puerperal fever should not become extremely rare.

Koch.—It is difficult to speak of tuberculosis without merely repeating the already familiar. In devoting a few minutes to this important disease, I wish to associate my remarks with the name of Robert Koch, who lifted our knowledge of this disease from the empirical to the scientific. Koch was one of many instances in medicine of genius triumphing over poverty. He was an obscure practitioner in a small country place, where he was able to demonstrate improvements of technique in bacteriology, which opened up a new epoch in this science. In 1882 he proved that tuberculosis is caused by the tubercle bacillus, and demonstrated the bacillus. He caused much searching of heart at the Congress in London in 1901 by his frank expression of opinion that bovine infection had very small importance in the production of human tuberculosis. More recent investigation has shown that bovine infection cannot be disregarded as a cause of tuberculosis in children; but his statement has doubtless led to greater concentration than there would otherwise have been, on measures to prevent infection from man to man. He steadfastly held to the view that tuberculosis in the main is a disease of the dwelling, more particularly of the bedroom.

I cannot express this better than in Koch's own words, uttered in his Nobel lecture in 1906:—

> The danger of infection becomes especially great when healthy people have to sleep in the same rooms with sick people, and even, as unfortunately still frequently happens among the poor, in the same bed. This kind of infection has struck attentive observers as so important that tuberculosis has been frankly and justly called a dwelling disease.
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> In Berlin during the last decade more than 40 per cent. of the cases of pulmonary phthisis died in hospitals. In Stockholm, too, the state of affairs must be very favourable in this respect. The number of patients that are thus placed in circumstances under which they can no longer infect is very considerable and cannot fail to influence the course of the pestilence.
>
> The improvement of the situation of the lower classes and the better knowledge of the danger of infection, the consequence of which is that

[illegible] even in some cases hold forth the hope of cure; if, moreover, their families are cared for during their illness, not the slightest compulsion will be necessary to induce a still much greater number of these unfortunate patients to go to hospitals than at present.

Factors in reduction of tuberculosis.—The causes of the remarkable reduction of tuberculosis in this and some other countries during the last 30 or 40 years cannot, however, be stated in a single proposition; and looked at from various standpoints diverse statements are possible, each containing a considerable share of the entire truth. In the three years 1909-11 tuberculosis of all parts of the body caused 151,137 fewer deaths in England and Wales than would have occurred had the experience of 1871-80 been continued. Comparing the percentage reduction for phthisis and for all non-tuberculous diseases in the aggregate for five yearly periods, from 1876-80 onwards, we obtain the following results:—

Percentage reduction (−) or increase (+) between—	Phthisis in males.	All causes, omitting tuberculosis in males.
1876-80 and 1881-5	−9 8	−6 2
1881-5 and 1886-90	−8 3	−0 5
1886-90 and 1891-5	−9 5	Unaltered.
1891-5 and 1896-1900	−8·3	−4·1
1896-1900 and 1901-5	−7·0	−9 0
1901-5 and 1906-10	−9 7	−8 8

It will be seen that there has been a fairly steady decline in the death-rate from phthisis, while the decline in the death-rate from all causes, excluding tuberculosis, has been irregular in amount, and only in recent years has approached that from phthisis. Improvements in housing, progress in [illegible] given a large share in securing the result. The habit of indiscriminate spitting, although still prevalent, is much less so than in the past. The standard of domestic cleanliness has improved, and this must have cleaned out many of the former centres of infection. Even more importance must be attached to the diminished overcrowding of bedrooms. Overcrowding in bedrooms under all circumstances is liable to become a source of disease, still more so when sick persons are participants in the overcrowding. This being the case, there can be no hesitation in accepting the statement that consumption is spread largely in the bedroom, and that, as Koch has repeatedly pointed out, one of the most important means for stopping its spread is to prevent the sleeping of consumptives in the same bedroom, and still more important in the same bed as healthy persons.

A partial antidote to urbanisation.—In this connexion further stress may be laid on the fact emphasised by Koch that the reduction of phthisis in this country has been associated with a steady increase in the use of hospitals for the tuberculous sick. The use of these hospitals has not been directed to the segregation of the sick. Their use has formed part of the greater humanity of the nineteenth and twentieth centuries, and of the increasing demand for treatment of the sick under [illegible]. Incidentally, such increa[illegible] treatment of the sick has [illegible] national prosperity; and a not very inaccurate index of national welfare in any country would be constituted by a comparative statement of its hospital provision. But let me state the facts for England and Wales. [A comparison of 1881 with 1910 in tabular form is given in the next column.]

In the country, as a whole, in 1881, one out of every nine deaths, and in 1910 one out of every five deaths; in London in 1881, one out of every five, and in 1910, two out of every five deaths occurred in public institutions. So far as phthisis is concerned, it is significant that in 1911, in the whole of England and Wales, 34 per cent. of the male and 22 per cent. of the female deaths, and in London 59 per cent. of the male and 48 per cent. of the female deaths from this disease occurred in public institutions. Inquiries at these institutions showed that the patients had usually spent several months in them prior to death. By this means, therefore, not only had the families of the patients been relieved of a serious burden, but also had been released from the risk of infection at a time when this was especially difficult to control.

In—	Percentage of the total deaths from all causes occurring in public institutions.			
	London.		England and Wales.	
	1881.	1910.	1881.	1910.
Workhouses and workhouse infirmaries	13·1	22·9	7·0	10 9
Hospitals	7·3	17 6	2·8	7·5
Lunatic asylums	0 4	0 8	1·0	2·1
Total	20 8	41·3	10 8	20 5

The rapidly increasing urbanisation of our population must be remembered in connexion with this reduction of phthisis and increase in its institutional treatment. No fact is better established than that tuberculosis claims more victims out of a given number living in towns than in rural districts. In London the phthisis death-rate in males in 1911 was 1·68 per 1000 of population, being 1·50 in the aggregate county boroughs, 1·04 in other urban districts, and 1·32 in the aggregate rural districts. Now the proportion of the total population living under the relatively unfavourable conditions of town life has during this period of declining tuberculosis steadily increased. The proportion of the total population in England and Wales living in rural districts has decreased from one half to less than a quarter between 1851 and 1911. It is evident, therefore, that some important influences have been at work counteracting the effect of urban conditions as a whole on tuberculosis. Among these, important place must be given to the hygienic effect of the stay for months in an infirmary or hospital of a high proportion of the total consumptive population, at the most infectious and helpless periods of their illness.

At the present time the prospect of complete control over tuberculosis is more promising than ever before. Not only is public administration, w[illegible] tuberculosis, becoming [illegible] National Insurance Act [illegible] means of effective attac[illegible]torium benefit was necessarily confined to insured persons, with possible extension to their dependents. The capital grant of 1½ millions for the building of institutions for the treatment of tuberculosis was made for the entire community; and the further promise by the Chancellor of the Exchequer to contribute half the cost of schemes of treatment of tuberculosis—beyond the cost of treating the insured—for the entire community, has opened the way for complete schemes of prevention and treatment, which are now in process of gradual realisation throughout the length and breadth of the land. These schemes ensure early diagnosis, prompt treatment, and the removal of sources of infection, by adequately linked up measures of domiciliary treatment, and of treatment at dispensaries, hospitals, and sanatoria. When these schemes are matured, there will, it [illegible] the means of [illegible] has necessarily been incomplete. Not only is there a marvellous record for typhus and enteric fever and for tuberculosis, but also for the diseases and accidents for which medical aid is required, and to a less extent for puerperal fever. A still more striking illustration could be found in small-pox, and even measles and whooping-cough in recent years appear to be losing some of their power under the influence of the child welfare work which is gradually becoming systematised in many sanitary areas. The marvellous advances in tropical medicine are well known to all of you. Future generations will hold in gratitude the memory of Laveran, Manson and Ross, of Reed and Carroll, and of many others who are rapidly transforming the tropical countries, formerly known as white men's graves, into places in which the European can live with safety, if not also with comfort.

The saving of life in this country has not been confined to the diseases ordinarily regarded as preventible and curable. Even cancer, if only recognised and treated at an early age, and when accessible to the surgeon, loses a portion of its terrors; and it cannot be that the concentration on investigation of this disease in nearly every civilised country will fail during the next few years to add it, like tuberculosis, to the diseases doomed to insignificance if not actual annihilation. When the next International Congress of Medicine meets in London, who among you will be the hero to be honoured in regard to this disease, as Pasteur was honoured as the leader of a new era of preventive medicine when you met in this place in the year 1881?

With the discovery by Schaudinn of the spirochæta of syphilis, and with that wonderful application of chemistry to therapeutics which the genius of Ehrlich has placed at your service for the rapid treatment of this disease, we may hope for more systematic and universal treatment of syphilis, and the removal of one of the great cankers of humanity.

I have not time to speak of the improvement in infant and child mortality which has been realised in recent years, thanks in large measure to the active work undertaken by the officers of sanitary authorities, acting in coöperation with voluntary associations. Full details of this are given in a recent report issued by the Local Government Board, and the subject was fully discussed at last week's important conference, over which I presided.

Alcoholism and disease.—Nor can I linger for more than a moment over the improvement in regard to alcoholism which our national statistics reveal. Although in our national life vast sums of money are still wasted on alcoholic drinks, the amount is declining, and I cannot refrain from associating this fact in some measure with the declining death-rate from all causes in the aggregate, and more particularly with the declining death-rate among infants and from tuberculosis. The association in regard to infant mortality obviously is through the diminution of neglect and the improved standard of domestic life.

In regard to alcohol, the responsibility of the medical man is very heavy. The medical opinions of one decade are the popular opinions of the next; and for the inordinate belief in the dietetic and therapeutic value of alcohol is not the medical profession in some degree responsible? It is gratifying to find that this is now altered. The following figures from the excellent work on alcohol by Sir Victor Horsley and Dr. Sturge may be quoted. In 1862 the patients occupying 2254 beds in seven metropolitan hospitals consumed alcoholic liquids to the value of £7712; in 1902 the amount spent in connexion with 2309 beds in the same hospitals was £2925. In 1875 1405 patients were treated in the Wandsworth Union Infirmary, and the alcoholic expenditure was £371; in 1905, 5451 patients were treated and the alcoholic expenditure was only £2 7*s.* 5*d.* Again, during the year ended March 31st, 1912, the total expenditure on alcohol in the workhouses and infirmaries of the metropolis was £1743. Taking the average daily number of inmates as 50,900, this amounts only to about 1*d.* per inmate per week. My review of our indebtedness to medicine for public health progress would be incomplete did I not refer to the aids which biology and chemistry are now giving us in the diagnosis and treatment of disease, and to the important subjects of hospitals and of nursing.

THE APPLICATION OF SCIENCE IN MEDICAL PRACTICE.

The teaching of recent years is bringing home even to the man in the street the importance of all branches of science in relation to medicine. All knowledge sooner or later is pressed into the service of humanity, and it is therefore the bounden duty of the people, as represented by the Central Government and by local authorities, to give all practicable assistance, not only in utilising to the full extent our present knowledge, but also in extending its borders. The value of the X rays in the diagnosis and treatment of disease, the possibilities opened out by radium, the almost magical contributions of chemistry as illustrated in the wo of Ehrlich and others, can only be mentioned in passin Happily there are signs that medical research will be assist by the State in future on a scale not previously conte plated; and in this connexion special mention must be ma of the promise contained in the prospective expenditure this country on sound and broad lines of the sum of so £58,000 per annum in connexion with the National Insuran Act.

Another branch of work in which research and scienti diagnosis are admirably commingled is exemplified by t splendid work which is now being done in the clinic laboratories by many of our large general hospitals. The laboratories provide facilities for the accurate and comple diagnosis of disease occurring among the poorest of t population which are as yet inaccessible to the vast majori of the total population, who are treated in their own home This limitation of valuable life-saving and disease-preventi work ought not to continue. I do not forget the fact th a large number of local authorities have provided faciliti for the diagnosis of the three diseases diphtheria, enter fever, and pulmonary tuberculosis. It may be hoped that i the near future it will be practicable to extend the wor done in laboratories, and to make it available for the wid needs of general practitioners, thus enabling them to brin up their work more nearly to the level of that carried on i well-equipped hospitals. If this is to be secured it i essential that every medical practitioner should have th opportunity of utilising for every patient the best means f accurate diagnosis which modern medical science provides

THE EVER-INCREASING INSTITUTIONAL TREATMENT OF DISEASE.

I have already spoken of the increasing extent to whic the sick are treated in institutions. Although at first sig the connexion may not be obvious, I regard this as a essential branch of the subject of housing. If overcrow ing is dangerous among those who are well, its danger i multiplied if the sick are commingled with the healthy and it is almost certain that the universal excess disease in town over country would have been muc greater had it not been for the assistance given b the hospital to supplement domestic housing and nursin It is not too much to claim for our hospitals that the have gone far towards removing the harmful effects o aggregation of populations in towns. Think, for instance, not only of the relief to the patients themselves, but of the easing of the burden borne by the overworked family, which is involved in the simple statement that in the year 1911 in the whole of England and Wales 24 per cent., and in London 47 per cent., of the total deaths from cancer occurred in public institutions. But I am speaking to those who, with the philanthropists, have rendered this supremely beneficent work possible, and who have in very large measure carried it out, and I need, therefore, only add a few figures which will make still clearer the enormous extent to which the home has been relieved by the hospital. I am indebted for these figures to "Burdett's Hospital Annual." In the United Kingdom there were in 1911, 49,854 beds in voluntary hospitals, or about 11 beds to 10,000 inhabitants, 80 per cent. of these being in daily occupation. The average stay for each patient was 25 days. These hospitals, including dispensaries, had in 1896 an income of £2,528,000, which in 1911 had increased to £4,185,000. The beds here enumerated do not include the much larger number in our workhouses and infirmaries, lunatic asylums, isolation hospitals, &c.

THE RÔLE OF THE NURSE.

The noble work of the medical profession in the treatment and prevention of disease would have been in large measure ineffective but for the devoted work of the nurse. In every age of the world there have been "born" nurses, but the "trained" nurse is a product of recent times. It is scarcely for me to sum up the qualities of the ideal nurse, but I may safely say that no amount of training will compensate if there is not also the tenderness of touch, the kindness of heart, and the desire to serve, without which the highest and best nursing cannot be secured. Personal experiences of many, if not of all of us, make us confident that paid service is not incompatible with the devotion and self denial which we associate specially with unpaid service, and without which skilled nursing fails in an important respect

The history of nursing is bound up with that of Florence Nightingale Until beyond the middle of the nineteenth century Sairey Gamp and Betsy Prig were scarcely exaggerated types of the hired nurse But in 1851 Florence Nightingale entered the Deaconess's Institute at Kaiserwörth on the Rhine, and thus apparently the impetus for improved nursing in this country appears to have originated in a German charitable nursing institution The great work of "the lady with the lamp' in the Crimea is well known With courage and knowledge, and with inflexible discipline at the military hospital at Scutari she changed a seething mass of loathsome contagion and confusion into a cleanly organisation of sick patients With *the gift of £50,000 raised for her by a grateful public* she endowed at St Thomas's Hospital the first great nursing school in this country, and she thus founded our modern system for the training of nurses The growth of the profession of nursing is among the most striking social facts of the last 30 years As medicine progresses and becomes more exact the need of nurses to carry out the details of medical instructions becomes more clamant In Poor law institutions alone some idea of progress may be gained from the statement that in 1897 the total nurses employed numbered 4100; in 1907 they had become 6500; in 1911 nearly 7500, and in 1912 over 7600 For the voluntary hospitals complete figures are difficult to give, but the following figures taken from that valuable compilation, "Burdett's Hospital Annual," will give some conception of the magnitude of their work in institutions

—	1911	
	Number of occupied beds	Total nursing staff
A Hospitals with medical schools —		
Eleven London hospitals	4 031	2 055
Nine provincial hospitals	2 295	833
Five Scottish hospitals	2 511	848
B Other general hospitals —		
In London	970	368
In provinces	3 325	1 151
In Scotland	281	92
C *Special hospitals* —		
In the United Kingdom	2 027	736
	15 500	6 083

For every five patients in these institutions two nurses are provided, including day and night service These numbers do not take into account the large number of nurses engaged in private nursing Nor do they include the nurses whose work is even more closely associated than that of the institutional or private nurse with the prevention of disease In London and the chief centres of population we have the Queen's Jubilee nurses, in many counties county nursing associations, and in nearly every parish a nurse who is engaged in helping the poor in sickness This help does not consist solely in the valuable aid rendered at times of distress Good district nursing also implies the teaching by example of methods of nursing and personal hygiene, which in the after life of the assisted family are probably more valuable than the immediate aid Did time permit one might advantageously discuss the valuable work of female sanitary inspectors health visitors, tuberculosis nurses and school nurses, which is
infant mortality, in pre
in securing a higher
cleanliness But I must conclude my brief review of the progress of medicine and the work ancillary to it in relation to public health

NATIONAL INTERDEPENDENCE IN RELATION TO HEALTH

Your presence here to day emphasises the international aspect of health Rapid travel by land and water implies greatly increased possibilities of spread of disease Happily, owing to inter communication of information and improved administrative *measures, precautions* can *more* than counterbalance the increased possibilities of disease News of danger can be transmitted by telephone, telegraph cable, or wireless, a whisper is heard from one hemisphere to another, and so the benefits of intelligence and supervision can be universally shared In other directions the possibilities of healthy life have been indefinitely increased Our food is collected from all countries, and we send in exchange our manufactures, each country according to its special facilities or aptitude Commerce and finance have formed a meshwork which covers the earth

Medical knowledge in particular is cosmopolitan Each country has brought its contribution I have already mentioned *the names of Pasteur and Lister, of Semmelweis and* Koch, of Laveran Manson and Ross, and others They stand out, but every great discovery has its background of smaller contributions to the common stock of knowledge without which no great *achievement is secured, and every* nationality has added its quota So is it also with reforms A reform in one country initiates or gives added impetus to efforts towards reform in other countries; and the tendency to follow becomes almost irresistible In some countries it has already become a duty of civilised life to prevent anxiety as to the means of subsistence in old age, and so old age pensions have been inaugurated In every country increased attention is being paid to the need to aid, when necessary, the widow to bring up her children, and insurance against accidents and disease is already in operation in Germany and in the United Kingdom Every effort forwards is valuable not only to the country immediately concerned, but also to every country; even mistakes by one nation add to one common stock of wisdom

In no department of advance is cosmopolitanism so important as in regard to social reform, an important share of which consists in the development of the medical possibilities of improved health and well being The chief impediment to such reform is wastefulness, and one source of waste, expenditure on armaments, stands head and shoulders above all others If this waste could be prevented gigantic sums would be released for the reforms waiting to be financed The chief among these is concerned with the problem of poverty and this problem will need to be attacked on an enlarged scale by removing the known causes of poverty not merely by applying palliatives to its effects

It is not too much to hope that this Congress will help to hasten the period of international peace and goodwill, earnestly desired by us all, in which our only rivalries will be in commerce, in progress, in science, and in the art of healthy and pure living

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LIVERPOOL ABATTOIR —The question of the site of the abattoir at Liverpool is as far from settlement as ever Half of the Love lane site was sold the day after the city council *decided not to buy it to the* British American Tobacco Company for a large factory, which will give occupation to about 4000 people The company are paying 30*s* a square yard instead of 25*s* a square yard, at which price the corporation of Liverpool had an option There is still the scheme to put the abattoir at the Stanley cattle market outside the town, but apparently there is no haste to remove the crying evil from the centre *of the city*

DEATHS OF EMINENT FOREIGN MEDICAL MEN — The deaths of the following eminent foreign medical men are announced —Dr E Buren, of Solingen, Privy Sanitary Councillor —Dr A Stratmann, of Wald, Privy Sanitary Councillor —Dr Th Coulon, of Malmedy Privy Sanitary Councillor —Dr J Dallmann, of Furstenwalde, Privy Sanitary Councillor —Dr Bourget, professor of clinical medicine and internal pathology in the University of Lausanne —Dr Aguilar, professor of gynæcology in the University of Granada —Dr Gardner, formerly professor *of mental diseases* in the Cooper Medical College, San Francisco —Dr G P Head, professor of otology and laryngology in the *Chicago Post* Graduate Medical School

THEORIES OF IMMUNITY AND ANAPHYLAXIS.[1]

By Professor A. BESREDKA,

of the Pasteur Institute, Paris.

There is hardly any practitioner to-day who does not know of the malady called "serous" (serum sickness), with its clinical aspects so varied and sometimes so impressive and resultant. Its pathogenesis is still obscure on more than one point, which has not, however, at all impeded the treatment, above all preventive, from being already based on solid foundations. The facility with which hypersusceptibility to serum is brought about, or the anaphylactic condition, in the guinea-pig has allowed the various aspects of the problem which interest us to be examined deeply, particularly that regarding the toxicity of serums. This toxicity being of very great practical importance, naturally a start was made by trying to cause it to disappear in a direct manner. Setting out with the idea that the serum contains a poison, an attack was made upon this latter by the most varied chemical substances: permanganate of potash, alcohol, oxygenated water, chloroform, ferments, alkaloids, salts; but all these were employed without the least success. The only means that showed itself efficacious in suppressing the toxicity was heating the serum to 100° C. This process of heating the serums is not, however, practical—above all, when therapeutic serums are in question; as if, at the temperature of 100° C., the toxicity of the serums disappears, the same thing happens to their curative properties; this method, therefore, must be rejected.

We asked ourselves, however, if we could succeed, if not in completely suppressing the toxicity, at least in weakening it, by heating the serums to a moderate degree. Experiment has shown us that the toxicity decreases, indeed, progressively and in parallel with the temperature. It has shown us that, if the serum is heated only to 56° C. during four consecutive days, one hour per day, the toxicity is successfully reduced to a considerable degree; it diminishes, in fact, in this case, by about fourfold, without the curative properties on this account being sensibly injured. At the Pasteur Institute we are accustomed to heat the therapeutic serums to 56°C. four consecutive times, for an hour each time; this heating was originally done with quite another intention—namely, in order to guard against the contamination which is always possible in the course of manipulating serums. Now, without doubt, by this operation of heating, the serums were at the same time rendered decidedly less toxic, which has brought about the result that in France "serous" accidents have been at all times relatively rare; and in cases where they do happen (in about 13 per 100 of cases) they have not the grave character that they possess in countries where the serums are not heated. We must, however, recognise that the heating of the serum is only a makeshift; it is only a palliative, valuable it is true, but very insufficient in certain cases.

There exists, however, a method which not only leads to "serous" accidents being diminished but of entirely avoiding them; in order to do that it is necessary to operate not on the serum, but on the animal itself, in rendering it refractory to the second injection, which is the injection of critical trial. This refractory condition we can bring about in a transitory or in a durable fashion. Let us examine both cases. If it is true that the "serous" malady is to be attributed to the nervous centres we said, with M. Roux, that the anaphylactic shock should be able to be suppressed by lowering the nervous sensibility of the animal. Experiment has shown us, indeed, that when the guinea-pig is anæsthetised by means of ether, and when the animal's brain is injected, during the narcotic sleep, with a quarter of a cubic centimetre of serum, which is a certainly fatal (mortal) dose, no reaction is observed, and the animal wakes up safe and sound.

The same thing happens with alcohol. Let us take an anaphylactised guinea-pig and make it drink alcohol, or, indeed, rather let us administer alcohol per rectum by clyster. Let us leave it to sleep off the alcohol for one or two hours and wait until it returns entirely to its normal state. At that moment let us inject its brain with a lethal dose of serum. The animal will not react to it any more than a fresh guinea-pig—that is to say, it will not manifest the least trouble at all. This experiment shows, therefore, that in lowering the sensitiveness of the animal by alcohol the guinea-pig can be rendered refractory to the fatal injection of serum, and likewise also at least during the 24 hours following the absorption of alcohol.

In the same category we have observed (unpublished experiments) that a guinea-pig, sensitised to serum, which is injected with a subfatal dose of atoxyl on the eve of the injection of critical trial, resists this latter, whilst the control guinea-pig, prepared in the same circumstances, but whose sensitiveness has not been annulled by atoxyl, succumbed to the second injection of serum, accompanied by the classical symptoms. The same thing happens with anaphylactised guinea-pigs which are enfeebled by a prolonged fast (Lesné, Konstansoff). But apart from this refractory condition, fleeting and of short duration, a veritable immunity can be obtained, during a long space of time, by a quite different mechanism. Here we touch upon the problem so full of unexpectedness and so interesting to the clinician—that of anti-anaphylaxis.

When it had been established for the first time that a guinea-pig, sensitised to horse serum by a first injection, reacted to the second by exhibiting fatal symptoms in a few minutes, the first idea which came into the mind was that the serum contained a poison, and, indeed, a very violent one. It is thus that the phenomenon was interpreted, indeed, by the observers who were working upon "serous" anaphylaxis with the guinea-pig—by Rosenau-Anderson and Otto on one side, and by ourselves and our collaborator Steinhardt on the other. It was, indeed, so much the view of Rosenau-Anderson that these authors began by attacking the supposed poison of the serum by means of the most varied chemical reagents; then, when they saw that they had no successful effect at all, they set to work to vaccinate against this poison, and in order to do so they were led to do exactly as if they had to vaccinate guinea-pigs against a true toxin: they submitted their animals to a series of injections, each one being separated from the succeeding one by the regulation interval of six days, and each one comprising a massive dose of serum (5 cubic centimetres). After having thus made three or four injections they waited a further six days before proceeding to the critical injection. This critical trial not having brought about the death of the animal, they believed that they had thus achieved in reality the active vaccination against the poison of the serum.

It is in the same sense that we ourselves made our first attempts to obtain passive immunity. In order to confer passive immunity against the accidents of anaphylaxis, that is to say, against the poisoning by horse serum, we commenced by making in guinea-pigs a series of massive injections of this poison—that is to say, of horse serum; and when we judged that the guinea-pigs were rendered well immune we bled them and mixed their serums with the presumed poison in the hope of neutralising its effect. Our hope was not realised; the horse serum remained as toxic after this mixture as before. That might arise, we said, because the poison contained in the serum was one of those which did not readily afford antibodies. But while making this reflection we had some doubts; after all, we reflected, perhaps there exists no poison in the horse serum. While admitting even that it did exist, by what right did we wish to apply to anaphylaxis ideas borrowed from immunity, especially those relating to vaccination, active or passive?

Our doubts took more substance when, in an experiment, we saw that, in order to confer immunity against anaphylaxis, a single injection of serum sufficed, and not a series of injections at intervals, as in the process of Rosenau-Anderson or of Otto. At last, our doubts gave way to the conviction that Rosenau-Anderson, as well as Otto, were on the wrong track, and ourselves likewise, the day when we had established with surprise that from the morrow of the single injection of serum and even a few hours after this, the animal was thoroughly vaccinated against anaphylactic accidents. It was thenceforth certain that the hypothesis of the poison in the serum must be rejected and that the process of immunisation, such as was practised by Rosenau-Anderson, Otto, and as we ourselves practised it, collapsed.

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[1] Abstract of a report on Antianaphylaxis to the Section of Bacteriology and Immunity at the Seventeenth International Medical Congress, translated for The Lancet.

We were compelled to make a clean sweep of all we knew about vaccination and to examine a new chain of ideas. One thing remained acquired, that was, that in vaccinating the guinea-pigs against anaphylaxis in the same fashion as one vaccinates against a toxin, that is to say, in multiplying the injections and in giving them at intervals, Rosenau-Anderson and Otto put in train a technique which did not respond in any way to the purpose they had in view; we say even more, that that technique of vaccination goes entirely in the opposite direction, because, in multiplying the injections, instead of vaccinating the animal, it is sensitised. It is to-day a well-established fact, to wit, that the more the injections of serum are repeated the better the animal is sensitised.

We found ourselves therefore in the presence of an extremely curious phenomenon: a guinea-pig anaphylactised with horse serum, after having received a certain dose, non-lethal, of this serum under the skin, was found in a condition of being able to bear, some hours afterwards, one or even two lethal doses of serum. From the point of view of prevalent conceptions upon immunity it is an extraordinary fact which has no parallel in biology. Reduced to its most simple terms it is stated thus: A poison—admitting, until further pronouncement, that there is one in the serum—injected in a non-lethal dose preserves the animal against the assuredly lethal dose of this same poison, when this latter is injected one or two hours afterwards; in other terms, the addition of two doses of poison of which one is lethal, made at an interval of one to two hours, annihilates all injurious action of this latter; there is here a sort of phenomenon of interference which only physicists know of. Whatever may be, moreover, the intimate mechanism of this phenomenon, the fact in itself was certain, and our sole preoccupation was from that time to draw from it the greatest advantage. It is this phenomenon which was the point of departure of our process of vaccination by small doses and by subintrant doses; it is to the explanation of this process that we now pass.

In pursuing our researches on what we have called anti-anaphylaxis—that is to say, immunity against anaphylactic accidents—we have acquired the conviction that a vaccinating effect could be obtained with exceedingly feeble doses of serum, so feeble that they could pass unperceived by the animal to be vaccinated. We have seen, indeed, that the guinea-pig which is in full anaphylaxis tolerates without the least trouble a decidedly lethal dose of serum in the brain ($\frac{1}{8}$ c.c.) if it is previously injected, for example, with $\frac{1}{50}$ or even $\frac{1}{100}$ c.c. of serum in the peritoneum—that is to say, with a dose which is from 200 to 500 times below the *dangerous dose*.

It is an important fact that this vaccination with feeble doses is extremely rapid; the effects take place in an hour or two, or even in some minutes, according to the individual case. Little doses of serum injected under the skin (1/20 c.c.) or into the peritoneal cavity (1/50 c.c.) act as veritable vaccines. According as the little dose of serum is introduced beneath the skin, into the peritoneum, the spinal canal, or the veins, anti-anaphylactic immunity is established with more or less rapidity. Thus with the guinea-pig it is reached, as a rule, four hours after the subcutaneous injection, and one or two hours after spinal or peritoneal injection, while it occurs almost instantaneously after venous injection, where the surprising rapidity with which the anti-anaphylactic state is established is most significant. We can thus take stock in quite a little time of a whole series of vaccinations, which we call "subintrant," and which confer immunity on an animal which can be tested in every way. Practically the little dose, which has just played the rôle of a vaccine, only retains efficacy against one or two lethal doses of serum. However, we come across cases where protection is required against several mortal doses, and it is then that "subintrant" doses are indicated. Instead of a single injection of serum we give two, three, or even four. At each fresh injection, at intervals of some three to five minutes, we increase the dose, and as each new injection increases the immunity of the animal a condition is reached of anti-anaphylaxis of remarkable persistence.

We have already pointed out that in France accidents with the serum treatment were rare, but this is no longer the case since we have begun to introduce the serum into the spinal canal. In Paris alone, to my knowledge, and at a short interval of time, ten deaths have occurred which can be put down simply to injection of the serum into the spinal canal. These cases will multiply if a remedy is not found, and this is the problem which we have attacked, by employing experiment, the only method which yields definite solutions.

In work done with Mdlle. Lissofsky we have shown that the classic symptoms of anaphylaxis can be reproduced by the intraspinal injections, and that with the guinea-pig these injections cause a shock indistinguishable from anaphylactic shock, but that as a rule the animal rapidly recovers, and only after an interval of one to five minutes do the typical anaphylactic symptoms begin to appear. As soon as we had proved that we could obtain with the guinea-pig anaphylaxis through the spinal route we attacked the problem of anti-anaphylaxis, and rapidly became certain that vaccination by little doses assured to the animal absolute immunity. Indeed, whatever be the method of vaccination adopted we can always preserve the animal against spinal anaphylaxis; the only tests to be observed are those which refer to the rapidity of the appearance of anti-anaphylactic immunity according to the method employed. The subcutaneous route is the slowest, vaccination by the spinal route is much more rapid. Experience shows that vaccination by this route induces anti-anaphylaxis in one to two hours at the most, twice as quickly at any rate as follows upon subcutaneous injection. But by far the most rapid method is intravenous, and not only is this method the quickest, but it is the most certain. The animal vaccinated in this way obtains absolute anaphylactic immunity in ten minutes or a quarter of an hour.

With regard to clinical practice, let me say first that the practitioner need not even inquire if the patient has already been injected. On all grounds anti-anaphylactic measures should be taken in each case where the serum treatment is employed, and every patient should be regarded as in a possible condition of latent anaphylaxis.

What, then, is the route to be chosen? It is dictated entirely by the condition of the patient. Let us consider a case of cerebro-spinal meningitis, for it is in such cases that we are most likely to have accidents. We are called to a patient with meningitic symptoms, but the diagnosis is doubtful, and injection is usually put off till to-morrow. In such a case do not leave without injecting 10 to 20 c.c. subcutaneously. It will not make the patient worse; on the other hand, if you decide on lumbar puncture the next day the patient will get full benefit, for he will be already vaccinated against anaphylaxis, and will be able to support immediately and easily 20 to 25 c.c. in the spinal canal. Take another case, occurring in the middle of an epidemic of cerebro-spinal meningitis, but the diagnosis is not doubtful. A spinal injection of 20 to 30 c.c. is decided upon. If it is not a very urgent case it is better to commence with an injection of 2 c.c., to let two hours pass at least, and then to inject the proposed 20 to 30 c.c. If the case is so urgent that each hour's delay brings, in the physician's opinion, added risk to the patient the venous route should be employed. The serum should be diluted, say, 5 c c. in ten *times its volume of* "physiological" water. Of this, 1 c.c. should be injected into the basilic vein; four minutes later 3 c.c. of the same fluid can be injected; two minutes later 10 c.c.; after an interval of two minutes a final injection of 25 c.c. can be given. The patient can now be considered as vaccinated against anaphylactic risks. Clinical practice has demonstrated that he can receive ten minutes later an injection, intravenous or intraspinal, of 10, 20, or 30 c.c. of pure undiluted serum. These examples will enable the *clinician to decide* what method of anti-anaphylactic vaccination should be [illegible] spinal [illegible] cutaneous, two hours intraspinal, and from ten minutes to a quarter of an hour intravenous.

What, then, is the mechanism? In 1907 in the *Annales of the Pasteur Institute* I wrote as follows: "Anti-anaphylactic vaccination when obtained by the peritoneal or cerebral route is probably a phenomenon of the same class as the disintoxication (*désintoxication*) of the tetanic brain by antitetanic serum performed *in vitro*. Vaccination thus reduces itself to dissensibilisation and would cause the guinea-pig to return to its primitive state, the anaphylactic immunity being only the immunity that the guinea-pig normally possesses against the intracerebral injection of serum." Nothing need be added to-day to these words. In fact, since it has been perceived that the anaphylactised guinea-pig became vaccinated immediately, and that after one injection, it became plain that anti-anaphylactic immunity had nothing in common with immunities against microbes and toxins. Antitoxic or antimicrobic immunity is only produced in eight days or so at the least, its permanency corresponds to the number of injections, it is accompanied by the appearance of the antibodies in the serum, and does not protect against inoculations into the nervous centres. Anti-anaphylactic immunity, on the other hand, can be established by one injection, that is to say, that it is instantaneous, it is accompanied by the disappearance of antibodies, and extends its influence to the nervous centres of the brain and spinal cord. The single common point between the two immunities, otherwise so diametrically opposed, is their specificity. It is the desire to convey in one word all these characteristics, which are so much opposed to current ideas in immunity, that the term anti-anaphylaxis has been coined; and to avoid confusion the term should be strictly preserved for cases of rapid vaccination, perhaps with one single weak injection, perhaps with a series of "subintrant" injections, and following closely upon each other.

THE DOSIMETRIC METHOD OF ADMINISTERING CHLOROFORM.[1]

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THE principles involved in this method are: 1. Chloroform acts upon the tissues of the human body directly in proportion to the strength of its vapour contained in mixtures with air or other gases, or if it is in solution, in direct proportion to the strength of its vapour as given off by the chloroform and other liquids in which it is in solution—e.g., ether, alcohol, oil. 2. Its action is progressive in the sense that while the dilution remains constant, when administered for a prolonged period the resulting narcosis becomes deeper and deeper. 3. Its action is different in degree although similar in character when affecting different tissues of the body. Thus low percentages of its vapour—e.g., below 1 per cent.—do not produce anæsthesia but lower body temperature and interfere with metabolism. Higher percentages—e.g., 2 per cent.—induce anæsthesia, and if given for a prolonged period progressively lower blood pressure, and prejudice the function of respiration. 4. Ultimately chloroform acts as a protoplasm poison, first lessening function, finally destroying the power of functioning. Such effects vary directly as the strength of the chloroform vapour which enters the organism. 5. There is no reason to believe that the action of chloroform is capricious, but there is every evidence to show that it reacts more vigorously towards tissues which are abnormal, the pathological condition arising as the result of interference with the normal processes of life, e.g., the onset of asphyxia; or as the result of pathological conditions affecting the tissues of the organism, e.g., the blood, the organs, or congeries of organs or tissues, e.g., anæmia; diseases affecting respiration or circulation; fatty or degenerative changes in tissue cells, themselves the result of disease and producing a lessening in ability to perform a vital function. 6. There is a definite strength of vapour—i.e., a definite percentage—which will in all cases induce anæsthesia, while when this is transcended deeper narcosis results which involves detrimental interference with the functions necessary for life—i.e., circulation, respiration, and metabolism. 7. There is further a definite strength or percentage value of chloroform vapour which, when anæsthesia has been completely induced, will maintain anæsthesia without increasing the depth of narcosis. This percentage vapour varies inversely as the length of time during which the vapour is inhaled, being highest at the moment that full induction has been attained and gradually lessening in value until the end of the inhalation. 8. Both the values of the percentages requisite for the induction of anæsthesia and those needed for its maintenance, while possessing a maximum for the normal adult of average physique, are lower for individuals of impaired vitality and for children. This is more especially true of the values of the percentages requisite for *maintaining* anæsthesia when once produced.

The evidence that chloroform action is uniform and depends upon the strength of the vapour introduced is, that intact animals (Snow, Bert, Dubois, Clover, Lister, Waller) when inhaling vapours between 1 and 2 per cent. become completely anæsthetic. In the case of small animals Snow found that percentages of 1·7 and 2·9 interfered with respiration. His experiments allowed the periods of induction and maintenance to overlap, so that the lower percentage is probably in many instances the one which proved lethal through prolonged inhalation—i.e., maintenance. Further, his animals breathed in a restricted space, itself introducing other factors. Bert arrived at similar results. His maximum of safety was 2 per cent., and danger was constant when this was exceeded. In human subjects Bert habitually employed 1·6 per cent., and Dubois's experience coincided. In Bert's practice the patient respired from large gas-holders, while Dubois employed a plenum system anæsthetising machine, which materially increases the amount of the mixture entering the lungs, the dilute vapour being delivered under pressure.

The actual processes operative in bringing about anæsthesia, abeyance of function, and ultimately death, are known to some extent, but the extent to which chloroform passes from the pulmonary air to the blood stream it is at present impossible to gauge. Its passage appears in the main to be one controlled by the physical laws which govern the passage of gases through a membrane into a fluid, the gas-tension of which is below that of the gas in the space beyond the membrane. The red cells of the blood, acting as carriers, convey the chloroform to the cells of the tissues, and (Moore and Roaf) these aggregate the anæsthetic, with the result that biochemical function is at first lessened and ultimately ceases. Both by examination of inspired and expired air and of tissues and blood acted on by chloroform we learn that the degree of interference with function is directly proportional to the percentage strength of the chloroform introduced, although we do not know precisely what the percentage in the tissue cells may be.

Passing to gross tissues, Waller, in a series of most beautiful experiments, has shown that nerve becomes paresed, and later loses its conductivity, when exposed to a vapour of chloroform progressively increased in strength. A uniform result followed a known percentage strength of vapour, so that given precisely similar conditions in the case of nerve we can predict that any given percentage value of chloroform will produce a definite effect on nerve. The amount of hæmolysis following chloroform inhalation is difficult to estimate, as many factors of unknown influence exist in the case of human beings. In dogs this effect is slight (Buxton), greater when large amounts of chloroform are used. The experiments done *in vitro* are of little value. The outcome of a very large amount of work done upon the influence of chloroform upon the heart and circulation appears to be: blood pressure falls, the heart's action weakens, possibly in part due to dilatation (*McWilliam*), and the vasomotor control lessens directly as the percentage of chloroform which is in action. Although always tending in the direction indicated, these effects can be controlled while anæsthesia is persistent, provided the percentage of chloroform given is lessened *pari passu* with the length of time during which the tissues are being subjected to the influence of the drug, and that environing conditions remain constant. The onset of asyphyxial states, the occurrence of hæmorrhage or traumatic shock profoundly influence the effects. The introduction of oxygen exerts a restraining limitation, while its exclusion accelerates the chloroform effects upon the tissues. Further, normal blood protects tissues, while abnormal, whether through deficiency of constituent parts or owing to its containing some foreign and pathological constituents, renders tissues more vulnerable to the deleterious influence of chloroform. A percentage of chloroform which entering normal blood will induce safe anæsthesia in one patient may bring about dangerous effects in another, if the state of his blood is vitiated by disease and especially by anoxæmia. Lastly, authorities, while differing slightly as to what height of percentage is the limit of safety, agree that double the anæsthetic dose of chloroform constitutes the lethal one.

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[1] Abstract of a report read before the Subsection of Anæsthesia at the Seventeenth International Congress of Medicine.

Another point of importance, which has now been fully proved by the workers named above, is that chloroform affects tissues in the following order: Nerve tissues—the more highly differentiated being affected first; then heart muscle; later striped voluntary muscle; and subsequently involuntary muscular fibre—i.e., a low percentage will parese nerve tissue and myocardial fibres, while a far higher percentage is necessary to produce any effect upon voluntary or involuntary muscular fibres. In this fact lies the essence of anæsthesia; if it were not so the practice of producing unconsciousness by inhaling chloroform would be impossible. But as has been formulated above, this progressive effect of chloroform as regards various tissues is also progressive as regards various associated congeries of tissues concerned in carrying on the processes of life. There is no break in procession of events when chloroform enters the organism. One portion of the bra [illegible] function [illegible] and the [illegible] the same percentage is inhaled the lower ganglia of the brain come under its influence and blood pressure falls while pulmonary ventilation suffers diminution and respiratory excursions grow more and more limited. Ultimately the nervous system becomes so much narcotised that it loses all power of function. At such an epoch the tissue life of voluntary and involuntary muscular fibre remains undestroyed. In the case of the tissue of the myocardium chloroform acts rapidly and early, for weighty evidence exists lending support to the view that the heart muscle soon loses its power of contracting and suffers acute dilatation.

Further, as regards the effect of chloroform upon the central nervous system, we are compelled to believe that some of its normal reflex mechanisms are affected, the effect being proportional to the strength of the chloroform vapour inhaled, in such a way that abnormally severe inhibitions are elicited, due to a hyperæsthetic state of the reflex centre. Embley has shown that with certain percentages of chloroform the vagal centres evince this increased activity, and that the effect of reflex inhibition under these conditions is to cause a heart standstill without the normal power for the organ to escape from inhibition. Yet a further example furnished by Bert's classical experiments shows the effects produced upon metabolism by chloroform. Dogs which were never rendered unconscious were found to die as a result of abeyance of the functions of metabolism.

It would then appear that even if we leave out of the question the massive effects—protoplasm destruction—produced by admittedly toxic percentages of chloroform, there is a very strong case in favour of believing that this anæsthetic produces effects which are directly determined both in their severity and the area over which they extend by the actual vapour strength which is introduced rather than by the actual amount of the drug which persists in the organism. I may be allowed, however, to indicate parenthetically that this storage of chloroform in the tissues is material to our present theme, although not so evidently so, since it determines the severity and possibly the nature of the sequelæ to chloroform inhalation. It may, and often does, produce a toxæmia, the prominent symptoms of which are tissue changes and tissue destruction; since the essence of a dosimetric system of administering chloroform consists not only in limiting the strength of vapour inhaled—first, to induce anæsthesia; secondly, to meet the actual requirements of the patient at every epoch of the operation, when environing circumstances challenge the necessity for change of dosage—but also in limiting the strength of vapour as the tissues become more and more under the influence of the drug in order to ensure the effect being one of a merely anæsthetic nature and not of the type of a toxæmia.

It may be said, and with some justice, that all drug action is a toxæmia, but I am using the term rather in the sense of a state brought about by destructive action upon the tissues by a drug, the symptoms of which state persist days or weeks after the elimination of the drug has been effected. Some workers have stated, relying upon experiments, that every person who takes chloroform is mildly poisoned, but may recover. This, so far as it is true, supports dosimetry in chloroform; as to its truth, that depends upon the careful scrutiny of the doses and methods employed in the experiments, a scrutiny which often reveals excess of vapour strength and viciousness of method involving extraneous factors—e.g., asphyxia, starvation, and so on.

Returning to the practical side of our question, it is convenient to consider the phenomena of the periods of (1) induction, (2) maintenance, and (3) recovery, including post-operation effects.

Induction.—Clinical experience supports the experimental results of Sherrington, Sowton, and others, that whereas the organism can be "taught" to tolerate even relatively high-percentage vapours if the strength is gradually reached, yet a sudden use at the commencement of an inhalation of such a strength results in collapse and probably death. When we are working out the physiological action of a new drug we use the utmost care to measure the strength employed. When our results are standardised we employ such and such a strength per kilo of body-weight and know that we shall in every case ensure a certain result which we anticipate. In the case of chloroform we have now standardised for the normal person that a strength of vapour somewhere about 2 per cent. will induce anæsthesia, that less will only cause sleep, while a greater strength will always lessen the activities of respiration and circulation, and may at any moment cause cessation of breathing and heart standstill. And yet in spite of this knowledge the methods most generally employed provide no means by which the administrator can even know the strength of vapour—i.e., the dose per kilo—he is giving, while he possesses no accurate control over the unmeasured and unmeasurable quantities of the drug employed. He is for ever experimenting upon his patients, and the results he obtains depend wholly upon his personal acumen as an experimenter. That he must frequently fail is foreordained, since in the problem which he seeks to unravel are factors of which he can possess no full knowledge. He depends solely upon his powers of observation; if the results consequent upon his unknown doses seem to be trenching upon the zone of danger he limits his supply of chloroform, but by how much he does not accurately know. Acquainted with the gross pathological changes obvious in his patient and the usual degree of trauma incident to any given type of operation, he nevertheless cannot gauge the more subtle tissue changes which make for resistive power to the "insult to tissue," or even to the strength of vapour which he is using, while he must always fail to anticipate the contingencies of shock and actual "insult to tissue" liable to occur in certain cases of difficulty. That many men can intuitively stumble upon a safe dose when employing undosimetric methods is obvious, and that experience will enable such to anticipate events is undoubtedly true, just as the pharmacist may guess his dose of strychnine or other potent drug; but the system lacks the imprimatur of science and is apt to fail at critical moments.

Maintenance.—These considerations bear equally upon the periods of induction and maintenance, but as regards the latter, another and equally important one arises. The patient who is safely anæsthetised and kept drugged throughout a prolonged operation may be, and often is, seriously prejudiced as to his recovery when an over-large amount of chloroform has been inhaled by him, even though his life has never been in obvious jeopardy during the administration. He is put into a state of chloroform toxæmia which directly interferes with his chances of safety and of achieving recuperation. With dosimetry, if accurate, he will have received the minimal quantity of the drug; at no time will his organism have been unduly depressed, and at the close of the anæsthesia consciousness will at once return and elimination will be practically finished. This aspect of the case is not sufficiently realised, nor is its importance recognised.

What, then, are the methods at our disposal to obtain dosimetry, and are we assured, on the one hand, that they are reliable, while, on the other, that in removing one set of dangers they do not introduce others?

Those in favour of dosimetry have sought to promote its ends by (1) an open method, with an elaborate system of dropping chloroform upon an absorbing and evaporating surface; (2) by mixtures; (3) by instruments which either present atmospheres of known strengths contained in receivers, or by inhalers so constructed as to determine a more or less accurate commixture of chloroform vapour and air, the strength of which is at all times known to the administrator, and can be varied by him with the utmost accuracy.

In order to test these methods we need to establish certain criteria. These are, first, is there a maximum of dose common to all individuals beyond which a danger zone exists? There have been, and possibly still are, persons who consider that every patient is a law unto himself as regards chloroform, and this can only be decided by testing him; hence they desire as pliant a system of administration as is possible. I think, however, that the evidence is all against such a view, and so it must be abandoned if any scientific concept of the administration of chloroform is to be adopted.

The actual maximum of the percentage of chloroform vapour consistent with safety has been experimentally fixed at 2 per cent. for induction, but some authorities regard this as too low for the requirements of the type of operations usual at the present time. It is not strictly within the purview of my subject to discuss this point, since whatever dosimetric apparatus is in use it can be graded to the required limits. It seems, however, substantially proved that the 2 per cent. limit is generally correct for all cases. When this limit is exceeded to obtain a more profound narcosis, it always carries the patient into the danger zone, being associated with a perilous fall of blood pressure and depression of the respiratory and heart centres.

Snow, Clover, the late Lord Lister, Waller, Levy, and others have shown conclusively that a drop method can be arranged which gives approximately a definite strength at the outset of the administration, but this is obtainable only by the utmost skill and experience, and only when such disturbing factors as the patient's irregularity of breathing, i.e., variations in depth and rhythm, room temperature, limitation of the "spread" over the evaporating surface, and prevention of air currents can be eliminated. Such an arrangement possible under experimental conditions is not attainable in everyday practice. Besides this fact the method is open to the danger that it presents no automatic limitation of the strength of vapour in use, and provides no means by which the administrator can ascertain what is the actual strength he is employing.

As regards mixtures, the same objections exist, with the additional one that, owing to the difference in the boiling-points of the ingredients, it is impossible to obtain anything like an accurate percentage value for the chloroform which is being given off.

Passing on to the mechanical inhalers we may note that Bert's method of mixing chloroform vapour in air in large receivers, although fairly exact, is unsuitable for routine employment, and, further, does not allow of the necessary variation in the percentage. It has passed out of use. We have at the present time a considerable accumulation of clinical experience bearing upon the employment of dosimetric inhalers. More or less exact regulating inhalers which are fairly compact have come into use, and many persons have been anæsthetised by their means: Snow's, Clover's, and the Roth Drager apparatus permitted a higher percentage than 2 per cent., and the means by which the percentage is lessened is inexact. With all of these deaths occurred during their use, owing to the 2 per cent. strength being exceeded. The regulators of Dubois, of Waller, and of Alcock are exact, and are constructed upon the plenum system, which renders breathing easy. These have given excellent results, although from their bulk they are more adapted for hospital than private use. Among "draw over" inhalers the Vernon-Harcourt has received the widest publicity and has been most employed. Dr. Levy's inhaler is on similar lines, but permits a maximum of 3·5 per cent.

My own experience is chiefly with the Vernon-Harcourt regulator, and although I have used most of the other forms I propose to speak mainly of this regulating inhaler. Its maximum is 2 per cent.; however, by using an increase tube, an undesirable addition, it is possible to produce 2·5 per cent., or, indeed, any percentage if the inhaler is specially graded for it. My experience, now extending over nearly 10 years, has convinced me that, provided an accurate technique is practised, 2 per cent. need not be exceeded. Very muscular and very obese subjects take a longer time to go under, and when time is an important matter, as in hospital work, a rapid induction with nitrous oxide and ether preceded by an injection of gr. 1/100 of atropine is often serviceable. I employ oxygen with the chloroform, not because the patient has any difficulty in breathing, or becomes cyanosed when this inhaler is in use, but because I am convinced that oxygen by maintaining the vigour of the tissues is a safeguard under any form of anæsthesia. Oxygen also lessens shock and counteracts the tendency of the tissues to weep when large areas are incised or denuded of their covering. The failure to produce complete anæsthesia with a 2 per cent. vapour is usually if not always the result of badly fitting masks or unskilled handling, so that although the machine registers 2 per cent. the actual percentage inhaled falls short of it. The use of a flanged mask lessens the danger of leakage. In some surgical operations deeper narcosis than the third degree—i.e., anæsthesia—is called for by the surgeon. When this is so the use of a dosimetric inhaler is more than ever desirable, since the danger zone is entered, and the anæsthetist requires a scientific instrument which enables him to control the higher percentage, increasing it at critical points in the operation and lowering it when these are passed. At all events, he knows exactly what percentage he is employing, and retains absolute control of the anæsthetic.

It is alleged that dosimetric inhalers introduce an asphyxial element, and, further, that they are inapplicable for many types of operation. These statements, however, arise from misapprehension or from lack of experience of the method. Cyanosis does not ever occur as a result of using an inhaler; when it arises it is due to preventable complications such as the faulty position of the patient, allowing fluid or other foreign material to occlude the airways or permitting the jaw to drop. Any of these possibilities may arise whatever method of giving chloroform is in use, and are so well known that any expert anæsthetist will foresee and guard against them. The dosimetric inhalers in common use are supplied with nasal and mouth tubes, and the definite percentage vapour can be either inspired by nasal tubes from a Vernon-Harcourt inhaler, for example, by Crile's method for operations about the buccal cavity, or can be propelled by a hand-pressure ball or foot-bellows similar to the plan adopted when a Junker's bottle is in use.

I may add that since adopting the dosimetric method I have seen fewer complications, and have been enabled to safeguard patients from chloroform collapse. The appearance of a patient after even a prolonged inhalation of chloroform, when a dosimetric method has been employed, is in striking contrast to what is seen when unstinted quantities of the drug have been inhaled. The one is of almost normal colour and suffers few after-effects, while the other is pale, drawn, vomits, and is collapsed to a greater or less degree. It is the difference between chloroform acting as an anæsthetic and chloroform acting as a tissue poison—between anæsthesia and toxæmia. The technique is too well known to need detailed description.

In conclusion, then, I may say that I believe, both from experimental and clinical evidence, dosimetric methods of giving chloroform are the only safe means of exhibiting that drug, and by their use its dangers are abolished or so far lessened as to be negligible.

New Cavendish street, W.

UNIVERSITY OF LONDON.—At a recent election of chairmen of committees Dr. S. Russell Wells was elected chairman of the council for external students, Sir Alfred Pearce Gould chairman of the Brown Animal Sanatory Institution Committee and of the Graham Legacy Committee, and Dr. W. P. Herringham chairman of the Site and Accommodation Committee. Dr. T. Buzzard has been reappointed representative Governor of the Westminster Hospital Medical School. Professor A. D. Waller has been re-elected director and Dr. T. L. Mears treasurer of the physiological laboratory. Under the Dixon Fund a grant of £150 has been made to the Brown Institution for researches into leprosy, Johne's disease, and toxins and antitoxins to be carried out by the superintendent, Mr. F. W. Twort, or under his supervision, and £10 have been granted to Mr. J. W. McLeod, assistant lecturer in pathology at Charing Cross Hospital, for researches into streptococcal toxin. Mr. S. H. Warren has been appointed Graham Scholar in Pathology for the sessions 1913–14 and 1914–15.

INFECTION OF THE URINARY TRACT IN CHILDREN BY THE COLON BACILLUS.[1]

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THE following remarks are founded mainly on the observation of 71 cases of various types of acute bacillus coli infection which have been under my own care. It is scarcely ever possible to decide in any individual case which route the bacilli take in passing from their original harmless position to where they ultimately set up disease. It is, however, quite certain that they are sometimes carried there by the blood-stream, sometimes pass in by the lymphatic channels, and sometimes ascend from outside by the lumen of the urinary tract. I would especially emphasise the great probability that the organisms often follow a combination of these paths in seeking their destination.

Predisposing influences.—When the bacilli reach the urinary tract their fate varies according to circumstances. Generally, in all probability, they are either washed out immediately by the urinary stream or else destroyed in the tissues or in the normal urine; or they may remain for a time doing little or no harm. The normal colon bacillus seems to have little pathogenic effect on healthy mucous membranes. Had it been otherwise the female urethra would surely not have opened so close to the anus. If the virulence of the organisms has been increased by morbid processes in the intestine or otherwise, or the normal resistance of the tissues lowered by local or general disease; or, perhaps, if there has been some retardation of the flow of urine, so that the bacilli have been retained abnormally long in contact with the tissues, then more or less violent inflammation, with corresponding symptoms, may be set up. The clinical histories, therefore, very often (32 times out of my 71 cases) give a definite account of the symptoms of the urinary disease having set in during, or shortly after, some sort of weakening disease or experience. In three-fourths of the cases in which such a predisposing ailment is noted it is of the nature of bowel disturbance. The analogy of adult cases leads us to believe that any cause which retards the downward passage of urine will predispose to bacillus coli infection. Cases of congenital hydronephrosis and dilated ureters, with hypertrophy of the bladder, are extremely apt to be infected in this way in the early days or weeks of life. In fact, if we find much pus, with colon bacilli, in the urine of a baby of a few days old, and can make out on palpation an enlarged and thickened bladder, we are justified in diagnosing congenital hypertrophy of the bladder with dilatation of the upper urinary passages.

Clinical features. Age.—The disease may begin within the first few weeks of life, and is about twice as common in children under two years as it is after that age; and it is also, generally, much more severe in the younger children. Occasionally, however, it presents its severest and most typical forms in later childhood. As a rule, when the disease occurs in infancy, the boys are affected at a much earlier age than the girls. There is a type of extremely chronic and intractable case which is almost, if not entirely, confined to later childhood. These cases generally begin after an acute illness—mostly measles; and many of them turn out to be tuberculous.

Sex incidence.—The relative proportions of the two sexes affected, and the ways in which the clinical detai [illegible] in boys and girls, are among the most striking [illegible] of this infection. An analysis of these differences might possibly throw some light on the course of the infection. The following are some of the points. 1. In all the lists of cases which have been published the number of girls is much larger than that of boys. Among my cases the girls formed 79 per cent. 2. In young infants, as Thiemich has pointed out, the illness begins more often with diarrhœa than in older children. We also find that the diarrhœa is more frequently a marked symptom in boys than girls. In other words, "primary" cases of acute pyelitis—i.e., cases setting in during apparent good health—are commoner in girls than in boys. 3. [illegible] six months [illegible] although a [illegible] When we take a larger number and analyse the ages and sexes of 224 babies under 2 years taken at random from 13 authors, we find that, although the numbers are less striking, there is still a considerably greater proportion of boys during the first six months than at any later age. 4. The extreme rarity of rigors at the onset of the symptoms in boys is noteworthy and interesting when compared with the frequency of this symptom in girls. In none of my 15 male cases was this symptom ever noted at the outset, although it was always specially inquired about. Among the records of 52 cases of bacillus coli infection in boys of 2 years old and under I have only found the occurrence of a rigor mentioned in one or two instances, while in girls it is very common. 5. Mild cases of bacillus coli infection are rare in boys in my experience. In male patients the attacks of pyelitis are apt to be severe, and there is usually in them a much larger proportion of cases of fatal pyelonephritis [illegible] conclusion that ascending infection by way of the urethra must be a common occurrence; and the excess of girls over boys probably represents the frequency with which urethral infection takes place. It seems very unlikely that the colon bacilli can find their way up the lumen of the male urethra. The greater prevalence of antecedent diarrhœa in boys would probably cease to exist if we were able to subtract from the list of girls the primary cases infected per urethram.

The frequency of pyelonephritis in the male sex may be explained by the infection having usually in them passed straight from the bowel to the kidney and pelvis, and not having ascended from below. The facts that rigors are so very rare in acute pyelitis in boys, and in pyelonephritis in both sexes, while they are so common in acute [illegible] we suspect an ascending infection), [illegible] ureters may be the particular [illegible] from irritation of which a rigor most readily arises. The frequency with which rigors are met with in ureteral calculus may be held to support this view.

Symptoms.—These depend on the severity of the inflammation and the part of the tract affected. When the disease has not spread beyond the bladder it is often impossible to recognise any symptoms at all, apart from the pus and bacteria in the urine, especially if the children are already ill at ease from intestinal or other disorders. Sometimes, however, careful questioning will bring out a history of increased frequency of micturition, with uneasiness or pain during the act, and perhaps also of some hæmaturia or of an offensive odour in the urine. There is little or no pyrexia. Much the most important cases of this infection are those in which the parts above the bladder are invaded [illegible] the striking [illegible] equivocal [illegible] severity of the general disturbance—acute distress, prostration, fever, &c. In a few of these cases one finds the early symptoms those of cystitis only, and then the temperature runs up suddenly, often with a rigor, and the clinical features of pyelitis develop. In others, symptoms of pyelitis set in obscurely, while the child is very ill with bowel disturbance. Very often, however, the symptoms [illegible] pyelitis begin suddenly in the [illegible] often reaching 103°-105° F. or even higher, and frequently assuming a remittent type which recalls that of a typical enteric fever. This may go on for many weeks with or without marked periods of intermission, but under alkaline treatment the pyrexia generally ends by crisis within 48 hours, although in about half the cases the temperature tends to rise again a few days after. The frequency of well-marked rigors in young children with acute pyelitis is interesting, because rigors from any cause are so very rare at this age. I do not remember ever having seen an infant under two years who had had a well-marked rigor and who had no pus in the urine. Vomiting occurs in more than half of the cases of acute pyelitis, especially during the first few days of the attack.

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[1] Abstract of a report read before the Section of Diseases of Children at the Seventeenth International Congress of Medicine.

The extreme misery, restlessness, and general tenderness from which these children suffer when their temperature rises form valuable and important diagnostic signs. They are drowsy and often delirious, and if they are very young infants they frequently squint. The respiration-rate, compared with that of the pulse, is often considerably quickened, although the respiratory organs are unaffected. In many cases there is a great disinclination for food, and even for fluids. The local symptoms are either slight or apparently quite absent. Indefinite colicky pains may be present, but the children are so irritable that the exact distribution of any tenderness that is present is often difficult to ascertain. Frequency of micturition is common, usually at the onset of the illness. In older children dysuria is much more likely to be troublesome than in infants. I have never found well-marked vulvitis or vaginitis.

The microscopic and chemical features of the urine are much the same, whether the case is one of simple cystitis, pyelitis, or pyelonephritis; but in pyelonephritis there is rather more albumin present than in pyelitis or cystitis, and a few tube-casts may sometimes be found. Little or no help is to be expected from the character of the epithelial cells found in the urinary deposit. The urine on passing usually looks slightly cloudy or opalescent, is distinctly acid, and contains a considerable number of pus cells and bacilli of the colon group. On standing it remains cloudy for a long time, and a definite deposit is slow to form. Although the urine generally shows a marked acidity when it is passed, the reaction changes rapidly on standing, and in time the urine becomes alkaline. On microscopic examination of the urine the pus is rarely large in amount. In coli-pyelitis there is often no pus to be found when the temperature first goes up. Sometimes the pus varies greatly in amount on different days, and may even disappear for a day at a time.

The differential diagnosis of acute coli-pyelitis depends on: (1) the presence of pus and colon bacilli in the urine along with the above severe general symptoms; and (2) the absence of any signs of organic disease outside the urinary tract which could account for the condition. A diagnosis of the exact distribution of the bacillus coli lesions in the urinary tract cannot be made with any approach to accuracy if the patient is a young child. Roughly speaking, patients who have pus and colon bacilli in an acid urine, with no rise of temperature and little or no distress, usually have cystitis only; remittent pyrexia with great general misery signifies pyelitis; while severe collapse with or without pyrexia often indicates a grave implication of the kidney. If a case of bacillus coli infection with high fever, which has been diagnosed as acute pyelitis, undergoes alkaline treatment thoroughly, and does not show a considerable fall of temperature within 48 hours of the urine having become alkaline, this signifies that the kidneys are badly affected.

Treatment.—In ordinary acute cases the first indication is always to ensure a free discharge of urine, usually by giving large quantities of fluid to drink. If the patient refuses to drink enough, the fluid must be administered through a stomach-tube or by the rectum. The second indication is to see that the bowels move adequately. The best drug for this purpose is probably sodium phosphate, because it helps in the alkalinisation of the urine. An occasional dose of calomel is also often beneficial.

The other important forms of treatment are: (1) *alkalinisation of the urine;* (2) *administration of antiseptics;* and (3) *the use of serums and vaccines.* The aim of the alkaline treatment is to render the urine alkaline, and to keep it so for a week or two after all the pus has disappeared and the signs of uneasiness have ceased. Although I have generally used potassium citrate for this purpose, other alkaline salts would probably prove equally efficacious if given in sufficient quantity. The dose of potassium citrate necessary varies considerably in different cases. The smallest amount which I have ever found successful in a severe case of coli-pyelitis was 24 gr. (1·55 grm.) in the day, in a girl aged 10 months. Generally one should begin with 60 gr. (3·88 grm.) if the patient is under 2 years old, and it will often be desirable to give double this amount. Occasionally 150 gr. (9·7 grm.) or 180 gr. (11·6 grm.) in the day has to be given before the urine becomes definitely alkaline and the temperature falls. Sometimes large doses set up diarrhœa; and when this is the case the neutralising effect on the urine is necessarily weakened. Occasionally the urine becomes alkaline within a day or two after beginning the treatment; generally in four or five days; rarely six or seven days, but never longer. The effect of the alkaline treatment is best estimated by studying the temperature charts; because, when the fever lessens, the other symptoms practically always improve. The fact that great benefit follows the alkalinisation of the urine in acute cases of bacillus coli infection of the bladder, ureters, and pelvis is, I think, quite established. How the treatment effects this, however, still requires investigation.

Antiseptics given by the mouth may act beneficially in two ways. In the first place they may lessen the infected state of the urine by their bactericidal action in the alimentary canal. In many cases of pyuria from bacillus coli infection a dose of calomel is followed by a distinct temporary improvement. The disinfectant action of the mercury in the intestine apparently improves the state of the urine by lessening the number of bacteria which are leaking into it from the bowel from time to time. Salol, in doses of 2 to 4 gr. (0·13-0 26 grm.) three or four times a day, is certainly often helpful. I have found it of most use when given in addition to alkaline treatment, especially in the later stages. Urinary antiseptics, such as urotropine and its various derivatives, which act directly on the bacteria by liberating formaldehyde in the urine, have proved of great value in the treatment of urinary infection by the typhoid bacillus and certain other organisms. They are, however, disappointingly ineffectual in most cases of colon bacillus infection.

Of the serum treatment which has been found successful by Cacioppo, Comba, Dudgeon, and others, I have had no experience. Vaccines I have used in a few cases, but with disappointing results. In the hands of others I have known them occasionally quite successful in acute cases, especially in older children.

Edinburgh.

THE CLINICAL APPLICATIONS OF PATHOLOGICAL CHEMISTRY.[1]

By OTTO FOLIN.

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In discussing the clinical significance or usefulness of pathological chemistry one naturally turns first of all to the urine, for urine has been the field of innumerable investigations under all possible conditions. It must at once be admitted, however, that the clinically useful contributions obtained by urine analysis have not been very numerous. It has been chiefly a matter of finding and determining a few urinary constituents which do not occur in health, such as albumin, sugar, and the acetone bodies. Metabolism disorders causing or accompanying diseases do not necessarily or usually result in any pronounced alterations in the amounts of the ordinary normal urinary constituents. Even in the case of gout, which is distinctly associated with uric acid, it is an extremely difficult matter to prove by means of urine analyses that the uric acid elimination is not entirely normal. And if it had not been for the fact that uric acid, because of its insolubility, is so easily found in the joints, it would unquestionably have been a very long time before any definite relationship between uric acid and gout could have been established. The elimination of the normal metabolism products does not necessarily give any clue to the extent to which they may be associated with diseases. Their formation is probably such an integral part of the continuation of life as to persist practically undiminished even in diseases which are essentially metabolism diseases, and being formed they are eliminated, and must be eliminated, substantially the same as in normal persons, or death will result in a very short time.

Of the four chief nitrogenous urinary constituents—urea, creatinine, uric acid, and ammonia—the last two have become important from the clinical standpoint. The discovery of the abnormal elimination of ammonia in acidosis represents a brilliant contribution of biochemistry to clinical medicine. Urea, water, and chlorides have become important factors requiring consideration in the study of nephritis.

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[1] Abstract of a report made to the Subsection of Chemical Pathology of the Seventeenth International Congress of Medicine.

In the case of urea, it is to be noted that it is only within the last decade that we have begun to understand its true relationship to protein metabolism and to the other nitrogenous waste products We are now reasonably sure that urea is not an oxidation product of the nitrogenous materials The animal body is not capable of oxidising the amino groups contained in nitrogenous materials taken as food, and the urea formation, as I look at it, is perhaps the most important mechanism for preserving the neutrality of the body fluids If it were not for the urea formation the body fluids would become loaded with ammonia The urea represents, therefore, chiefly a metabolism of superfluous nitrogen in the food, and tells us nothing concerning the oxidations of the remaining carbonaceous residues derived from the protein material Except in the case of certain rare and unusual "inborn errors of metabolism' the urea formation is persistently normal, however much the urea elimination may vary because of normal or pathological variations in the total nitrogen metabolism The urea nitrogen in urine may represent anywhere from 50 per cent to 95 per cent of the total urinary nitrogen, the proportion depending chiefly on the relative proportion of the food metabolism to what has been called the tissue metabolism

The illusion which persisted so long with reference to creatine and creatinine in urine represents a striking illustration of how important facts of metabolism remain hidden for want of suitable analytical technique We know now that these two products do not occur in miscellaneous varying proportions in human urine We know that creatine, for some unknown reason, is normally found in the urine of children in relatively large amounts, while in urine of normal adults there is usually scarcely a trace of creatine We also know that creatinine in the urine of adults is practically independent of the protein in the food that the amount eliminated depends on the size of the person, and that in diseases creatine is also frequently found in the urine of adults Nothing definite is as yet known concerning the creatinine output in abnormal metabolism except that in fevers and other diseases there is an increase, sometimes a very large increase It is to be noted that we are as yet entirely ignorant of the origin and significance of the creatine which is so abundant in muscles, and it is scarcely to be doubted that fundamentally important metabolism problems somehow are connected with the muscle creatine and urinary creatinine, but these are as yet problems of normal metabolism, and it is too early to say whether or in what way light may be thrown on clinical problems by studies of these products The fact that the muscles of mammals, including man, contain 0 3 0 4 per cent of creatine and only traces of the chief nitrogenous waste product urea constitutes to my mind strong presumptive evidence that creatine serves some important function, and it is quite conceivable that metabolism diseases of one kind or another may be associated with this curious substance

In urine analyses we determine the products which have been eliminated In the study of the essential facts of normal metabolism urine analysis has rendered valuable service, because in normal persons waste products do not accumulate in the body In diseases however, the situation may be quite different, for while waste products may be eliminated in amounts so nearly normal that we cannot detect any deficiency by urine analysis, there nevertheless can be serious accumulations of products within the body The primitive notion about ' impure blood " has a kernel of truth in it and by chemical analysis of blood it is now possible to reveal clinically important facts

The blood of normal human adults contains from 22 to 30 mg of non protein nitrogen per 100 gm of blood About one half of this nitrogen (12–16 mg) is normally represented by urea, and the remainder represents chiefly amino acids and various soluble materials, as well as traces of uric acid, creatine, creatinine, and a barely perceptible trace of ammonia Whenever the kidneys are not perfectly normal the total non protein nitrogen of the blood goes up, and the proportion represented by urea is increased Moreover, in middle aged adults perfectly normal kidneys are the exception rather than the rule Out of about 150 syphilitics examined the last two years in my laboratory three out of every four carried nitrogenous waste products in the blood greatly above the normal, and nearly the same conditions were found in the insane Out of 45 nephritics of all kinds whose blood we have examined only 9, or 1 in 5, were normal with reference to the amounts of nitrogenous waste products in the blood By means of blood analysis we can now determine with far greater certainty than is possible by any other test whether a given patient is or is not normally eliminating the nitrogenous waste products For such a determination only 5 c c of blood are required [2] The usefulness of this application of biochemistry to the study of clinical problems needs no emphasis

One interesting problem in this field is the effect of different diets on the retention of waste nitrogen By the selection of diets low in protein it should be possible to reduce the amount of work required of the kidneys to a level at which they may be able to keep the waste products in the blood within normal levels We have recently tried this on a series of nephritic patients

The following figures were obtained in four days by means of a diet consisting chiefly of carbohydrates —

Blood Nitrogen

On the regular hospital diet	After the low nitrogen diet
32 mg	19 mg
40	19 ,,
62 ,	30 ,,
44 ,	19 ,
58 ,	23 ,,
37 ,,	20 ,
82 ,,	26 ,
30 ,	20 ,,
37 ,	23 ,
48 ,,	22 ,,

From the few figures cited (out of a great many) it is clear that it is possible to modify very much the level of non protein nitrogen in the blood of nephritics, and to check up the effects by means of blood analyses It is a curious fact that the blood in nephritis when high in urea is also high in other forms of non protein nitrogen In other words it looks as if the accumulation of urea retarded the de aminisation of the amino acids for it seems unlikely, though this possibility is not yet excluded, that the increase is due in any large measure to other nitrogenous waste products such as creatinine The ammonia is negligible There is no demonstrable connexion between the blood pressure and the level of non protein nitrogen in the blood

One most interesting fact which we constantly meet with in blood analysis is that there is no correspondence between uric acid and the total non protein nitrogen in the blood In gout, or lead poisoning, or leukæmia the blood is uniformly rich in uric acid, yet the total non protein nitrogen or urea nitrogen may be normal [3] In pure nephritis or other cases of urea retention the uric acid is seldom much above the normal This fact manifestly points to a selective activity on the part of the kidney with reference to the normal waste products

We have recently investigated a number of gouty patients with reference to the effect of atophan (phenyl chinolinphenol) on the uric acid of the blood The fact that the administration of atophan results in an increased uric acid elimination is well established, but a correct interpretation of how this is brought about can be obtained only on the basis of blood analyses, and it is only within the last year that it has become possible to determine the uric acid in blood with any degree of certainty The following figures may be cited from our work —

Uric Acid in Blood Before and After the Use of Atophan.

(The figures represent milligrammes of uric acid per 100 gm of blood)

Case	Before	After	Case	Before	After
1	5 4	3 4	4	5 7	2·2
2	5 0	1 1	5	3 1 ..	2 2
3	3 1	1·2	6	4 0	1·2

The amount of uric acid in normal human blood varies between 1 and 2 mg per 100 gm

Atophan appears to stimulate the kidneys to increased activity, and it has no effect unless there is a rather high uric acid level in the blood It does not "mobilise" deposited urates except through the slight effect produced by the reduced uric acid content of the blood. Atophan stimulates the kidney not only with reference to the excretion of uric acid, but also with reference to the excretion of other nitrogenous waste products, so that the total non-protein nitrogen and the urea of the blood also sink in consequence.

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[2] For description of all the analytical methods referred to in this paper see Folin and Denis Journal of Biological Chemistry, vols xi -xiii , 1912–13

[3] For a uric-acid determination in blood 15–20 c c are required

There is in my mind not the slightest doubt but that by means of chemical investigations of blood, clinical problems of many kinds will be elucidated to a much greater extent than has been possible by means of urine analyses, though the two must usually go hand in hand.

Boston.

OPHTHALMIC PROGRESS IN EGYPT.[1]

By A. F. MACCALLAN, M.D. CANTAB., F.R.C.S. ENG.,
DIRECTOR OF OPHTHALMIC HOSPITALS IN EGYPT.

IN 1903 a sum of £E.41,000 was placed at the disposal of Lord Cromer, then British Agent in Egypt, for the relief of sufferers from eye diseases by the liberality of Sir Ernest Cassel. It was decided to establish a hospital consisting of a camp of tents to travel round the country districts, remaining four or five months at each place. I came to Egypt to organise and to administer this and other means of ophthalmic relief subsequently inaugurated. These hospitals became a definite branch of the Egyptian Government service in 1906, in which year the first permanent hospital was built at Tanta.

Between the beginning of the year 1904 and the end of the year 1913 14 new hospitals will have been inaugurated in various parts of Egypt. For each of these establishments both the initial outlay and the cost of maintenance are assured. Both permanent and travelling hospitals have their place in the Egyptian system of ophthalmic relief, and each of these types has two or more varieties. The permanent hospitals which are now being built in the capital town of each province by the Government architects have accommodation for 14 in-patients. Some of the hospitals previously constructed, such as those of Assiut and Mansura, are much more commodious and were to a corresponding extent more costly. But the small type of hospital has been found sufficient for the needs of several of the 14 provincial capitals, since all the commoner operations, such as those for trichiasis and for trachoma, are performed on out-patients. The initial outlay required, which must be provided locally either by self-taxation, subscription, or gift, is about £E 5000. The expense of maintaining such a hospital, including salaries of two Egyptian surgeons, is defrayed by the Government at a cost of £E.1500. The number of patients who can be treated a day is from 200 to 300, including 20 new cases. Operations are performed daily from 9 A.M. to 11 A.M.

The travelling hospitals are an important feature of the system. Each hospital consists of a number of Indian tents, including one especially spacious for the performance of operations. Each camping-ground is occupied for four to six months. In this way most of the larger towns in Egypt have been visited. Only poor people are received as patients and all treatment is gratuitous. It is due to the popularity of these hospitals that the need for ophthalmic relief after countless generations of suffering and disability is becoming felt by the people of Egypt, a need which was not realised until the establishment in 1904 of the first hospital under my sole surgical charge.

The administration and clinical direction of these hospitals are vested in the director, with the assistance of two British and one native inspecting surgeons. The subordinate staff consists at the present time of 23 Egyptian surgeons, who, having completed the medical curriculum at the Government Medical School in Cairo, volunteer for ophthalmic training and service; the average man makes a good and careful operator for all lid affections; while a few of the senior men have attained to quite first-class operative ability in the performance of intraocular operations.

Owing to the powerful and sympathetic aid of Lord Kitchener, who has personally visited most of the hospitals, the annual amount available for ophthalmic purposes now amounts to £E 19,000, though even this sum is inadequate. In the province of Aswan it is proposed to provide a specially built dahabeah hospital at a cost of £E 2500 or £E.3000 as soon as this sum can be obtained. Neither the Government nor local effort can provide such an amount, and it is an opportunity for someone in England to extend his generosity and his sympathy with the people of this poor province. During a recent visit of a hospital to Aswan more than 16 per cent. of the patients examined were found to be blind in one or both eyes, the result of acute ophthalmia. The amount of blindness in Egypt is usually stated by non-professional observers to have largely decreased within the last 20 years; nevertheless, out of 43,668 patients examined during 1912, 6939 persons were found to be blind in one or both eyes—that is, nearly 16 per cent. It is probable that there has been a small diminution the result of the enforcement of compulsory vaccination, but enough has been said to show that ophthalmic conditions are still appalling, and no relaxation must be allowed in the efforts to improve them.

The different methods in which ophthalmic relief may be given have been thoroughly studied, and no time has been spared in the consideration of the various suggestions which have been made. Realising the impossibility of effecting an ophthalmic revolution in any finite period, it has been considered all important to put those means of relief which future generations will use and will profit by on a firm and lasting basis. The means which have been decided on are a permanent built hospital or its equivalent in the capital town of each province provided locally and maintained by the Government, and a travelling tent hospital with accommodation for a few in-patients provided and maintained by each provincial council. From each of these centres will develop various branches of work, including treatment of the pupils in schools and kuttabs, lectures on ophthalmic hygiene, distribution of pamphlets giving instructions for the prevention of infection, provision of first aid in eye diseases in the remoter villages, and talks in simple language to collections of women of the necessity of cleanliness for their children and of the way it should be effected. Money, skilled labour, and time will gradually work a vast improvement among a people who are intensely anxious to avail themselves of the small amount of ophthalmic relief which is at present obtainable.

Cairo.

Reviews and Notices of Books.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. VI., No. 24. July, 1913. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, and Melbourne: Henry Frowde. Subscription price 25*s.* per annum. Single numbers 8*s.* 6*d.* each.—The contents of this number are: On Auricular Fibrillation, by A. M. Gossage and J. A. Braxton Hicks. Four cases are recorded and carefully discussed. The authors conclude that the exact cause of auricular fibrillation is as yet unknown, but that it usually comes on in a heart where there has been disease of the valves or myocardial change. In one of their cases, however, the condition developed suddenly in a heart which had not previously shown any evidence of disease, and they suggest, therefore, that it is possible that auricular fibrillation may occur in previously healthy hearts, and if this is true, that the essential cause must be outside the heart.—Illustrations of Heart-Sound Records, by Thomas Lewis. A method of recording the heart sounds by means of a stethoscope, a microphone, and a string galvanometer is described, and some interesting photographic reproductions of the records obtained are given. These illustrate the normal heart sounds in man and the dog and the modifications produced by disease of the valves and other conditions. It is interesting to note that Dr. Lewis has found considerable difficulty in recording the systolic apical murmur in a large percentage of cases of mitral regurgitation. Records are shown of aortic and pulmonary murmurs, and their time relations and vibration frequency are examined. The problem of reduplication of the cardiac sounds is shown to be complex and to require careful investigation by graphic methods.—The Incidence and Prognostic Value of the Pulsus Alternans in Myocardial and Arterial Disease, by J. Davenport Windle. Brief descriptions are given of the clinical histories of 33 patients with myocardial and arterial disease, and the author confirms the view expressed by Dr. James Mackenzie that the inception of pulsus alternans in aged people is of grave prognosis.—Pseudochylous Body Fluids, by John Marrack. The characters of two examples of milky-looking ascitic fluids are carefully examined. It is suggested that in such fluids some lipoid, not necessarily present in excess, is not in the usual state; possibly in clear fluids it is combined and in milky ones free.—Cysticercus Cellulosæ in the Central Nervous System, with an Account of Two Cases, by Rupert Waterhouse. Both cases are very carefully recorded and numerous blood counts are given, showing the eosinophilia. In one case, which subsequently died from meningitis following acute pneumonia, an eosinophilia of the cerebro-spinal fluid was observed. Plates are given showing the appearance of the brain in one case and of an excised cyst from the muscles in the other.—On Pneumothorax Treatment of Tuberculosis of the Lungs, by O. Amrein and F. Lichtenhahn. The technique of the procedure as carried out by the Murphy-Brauer method is described, and the results obtained in 11 cases observed by the authors are stated. The paper is illustrated by some good reproductions of skiagrams.—The Localisation of Function in the Kidney, by W. P. Herringham and J. W. Trevan. Some interesting observations upon six cases of nephritis, using the method suggested by Schlayer for investigating the activity of the tubular and vascular mechanisms of the kidney, are recorded.—The "Specific" Use of Salicylate in Acute Rheumatism: a Consideration of Practical Objections, by Reginald Miller. The purpose of the author has been to examine certain objections to the theory that salicylate diminishes the activity of the rheumatic infection, rather than establish its truth. He finds that these objections are in the main not valid.

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[1] A communication read before the Ophthalmic Section at the Seventeenth International Congress of Medicine.

Jahreskurse für Aerztliche Fortbildung. Munich: Lehmann. June, 1913. Price 18 marks per annum.—Professor Langstein reviews advances in diagnosis and treatment of the affections of children. After a brief article on the artificial feeding of healthy infants, he discusses pyelocystitis in childhood, which is not uncommon. Error in diagnosis may lead to severe illness or even death. In sucklings the most prominent symptom is usually a rise in the temperature, which may be high at night but normal in the morning, or may be continuous, and an apparently causeless fever in a baby should always arouse suspicion of this disease. The appetite is often lost and there may be great thirst. It may be possible to detect some swelling of one or both kidneys. The diagnosis is made by the examination of the urine, which is often turbid and shows leucocytes and bacteria under the microscope. The urine is usually acid. The commonest organism found is bacillus coli. Sometimes in unilateral cases the ureter from the diseased kidney may be blocked at intervals, so that the urine is alternately clear and turbid. In older children local symptoms, such as bladder pain and frequency, are more prominent. The causation is probably a blood infection from the alimentary canal, but it may ascend from the urethra. The prognosis is fairly good; many of the cases recover, but a few die. It is important to keep the genitals of children as clean as possible, and to avoid soiling of the urethra with fæces, so as to guard against this disease. The treatment is to supply abundance of fluid, both by the mouth and the bowel, to feed well (albuminous fluids giving the best results), and to administer alkalies and particularly urotropine, salol, or hippol. Vaccine therapy is mentioned but not advised. The next subject is chronic nephritis and albuminuria in children, usually occurring at about the school age. The forms described are chronic hæmorrhagic nephritis, a chronic nephritis resembling the above in symptoms and in the development of anasarca but lacking the hæmaturia, contracted kidney (exceedingly rare in children), pyelonephritis following on pyelitis, "pædonephritis," and intermittent albuminuria. Of these, "pædonephritis" is the most important. The symptoms are often vague and insignificant—loss of appetite, pallor, headache, occasional constipation. The quantity and specific gravity of the urine are normal, but it contains a good deal of albumin, a few blood cells, and hyaline and granular casts. Some of the cases get well, but they are always in danger of development of a hypertrophied heart, high blood pressure, and uræmia.

Knowledge for August contains several articles which will appeal to the medical reader. In the Streamless Downs and their Dry Valleys, Mr. G. W. Bulman compares the dry chalk valleys in the south of England with the oueds of the African deserts, though not, of course, as to their origin, oueds being rivers buried by the drifting sand, their waters still passing along the old channels.—Mr. H. Stanley Redgrove has Some Notes on the History and Significance of the Theory of Spontaneous Generation, and Mr. E. Joblin discusses The Age of the Earth, while Mr. Ruskin Butterfield pleads for the establishment of a National Folk Museum at the Crystal Palace. A joint paper, well illustrated, by Mr. C. Ainsworth Mitchell and Mr. R. Morris Prideaux, on the Hairs of Animals, in which the authors state that they would be grateful for any authenticated specimens of hairs of out-of-the-way races of mankind that may be sent to them, will be read with considerable interest. One of the authors recently stated that, while there was a central canal or medulla in the hair of the higher apes, one was apparently not formed in human hair. Mr. Mitchell and Mr. Prideaux have been carrying out investigations, the result of which has caused them to modify this statement. It occurred to them that since the axillary hair in man is probably a vestige of his former ancestry, it was in such hair that a medulla would be most likely to be found. This was confirmed by a study of the hair from the arm-pit. The authors of the paper believe that the hair of human species of low type resembles that of some of the higher apes much more nearly than it does the hair of the average European.

DONATIONS AND BEQUESTS.—By the will of the late John Newton Mappin the testator left, subject to his wife's life interest, £1000 each to the London Hospital, Royal Free Hospital, North-Eastern Hospital for Children, Chelsea Hospital for Women, St. John's Hospital for Diseases of the Skin, Royal Hospital for Incurables, Epsom Cottage Hospital, Leatherhead Cottage Hospital, Cobham (Surrey) Cottage Hospital, Royal Sea Bathing Hospital, Margate, Children's Convalescent Home for Surrey (Bognor), Surgical Prov [illegible] Hospital,
Sheffield, and [illegible]
William McE [illegible]
Convalescent [illegible]
Infirmary.—U [illegible]
c [illegible] other bequests have been
r [illegible] Hospital, £225 each to
t [illegible] the Swansea Deaf and
I [illegible] wood Asylum.—Among
t [illegible] of the late Miss Maria
Mercer, of Clayton-le-Moors, Lancashire, are the following: £5000 to the Blackburn and East Lancashire Infirmary and £3000 to the Victoria Hospital at Accrington.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE Congress came to a formal end on August 12th. Before the closing meeting an eloquent address on the progress of public health was delivered by the Right Honourable John Burns, President of the Local Government Board, which will be found published in full in this issue of THE LANCET.

Throughout the week numerous entertainments have been given by various bodies and various private hosts, a full account of which we make no attempt to give.

The council and staff of the London (Royal Free Hospital) School of Medicine for Women entertained at the medical school, Hunter-street, Brunswick-square, a large party of foreign and colonial delegates attending the International Medical Congress at luncheon on August 7th. The chairman of the council, Mr. F. D. Acland, M.P., was supported by Miss Aldrich-Blake, M.D., M.S., Sir Clifford Allbutt, Sir Rickman Godlee, Sir John Rose Bradford, Dr. Mary Scharlieb, Dr. May Thorne, Dr. Jane Walker, Dr. Ethel Vaughan-Sawyer, and other medical women. Among the guests were Professor Théodore Tuffier, who acknowledged the welcome addressed to the guests by the chairman and Dr. Mary Scharlieb, Dr. Rudolph Matas, Dr. F. von Müller, Professor Anthony, Dr. Maude Abbott, Dr. Sarah Palmer, Professor Bang, Dr. Másiná, and Sir Charles Lukis. The medical school laboratories were open to visitors, who were also shown over the Royal Free Hospital and the New Hospital for Women.

On Thursday, August 7th, Sir Alfred Pearce Gould, Dean of the Faculty of Medicine of the University of London, and Lady Pearce Gould gave a garden party at the College, Regent's Park, at which a very large number of the members of the Congress were present. It was unfortunate that this pleasant and generous reception should have fallen on the one day of the Congress when the weather could not be called genial, and undoubtedly a cold shower early in the afternoon proved a deterrent to the more faint-hearted. However, a very large company assembled, and were rewarded by a thoroughly pleasant afternoon.

The dinner given by the Society of Apothecaries of London on Thursday, August 7th, fully sustained the world-wide reputation of the City Companies for excellence in the science of hospitality and in the artistry of dining. The guests were received by the Master, Mr. W. Bramley Taylor, and the Wardens, Mr. Martindale Ward and Mr. Meredith Townsend. Those present numbered close on 80, the foreign guests including Dr. O. Josué, Professor P. Janet, Dr. R. W. Lovett, Professor Dr. A. Biedl, Professor Paul Ehrlich, Professor Pelizzari, Dr. A. Besredka, Dr. Emil Grahe, Professor Dr. Wenckebach, Professor Dr. Abderhalden, Professor Dr. L. Burkhardt, Professor W. Straub, Dr. W. J. Mayo, and Professor F. Wiedl. In accordance with old-established custom the loving cup was passed. After the usual loyal toasts the Master gave the toast of "The International Medical Congress" in felicitous terms. Sir Thomas Barlow, in responding, referred to the official recognition that had been given to science at this Congress. He deprecated the attaching of undue importance to such recognition, for the strength of science had always lain in its striving to lean only on itself. Nevertheless it was a gratifying fact that such recognition was now being so freely given, and he alluded to the Government dinner, which was universally admitted to have been a great success, as a distinct advance in that respect. He next paid a tribute to the efforts of the Society of Apothecaries as an examining body to keep itself progressive. Finally he stated that it was in the "domestic meetings," such as this, rather than in the big conversaziones, that our friends were drawn closer to us. The Senior Warden then proposed "Our Foreign Guests." He said that medical men, more than any other section of the community, realised the universal brotherhood of man. Foreigners among them were foreigners only in language and habitation; in all other things they were comrades. He drew attention to the bust of Gideon De Laune, discoloured, it was said, by the Great Fire of 1666, as an instance of the brotherhood that Englishmen entertained for foreigners. De Laune became Master of the Society of Apothecaries, and in his case even the difficulties attending his admission to the freedom of the City were overcome through the mediation of the King. Dr. Josué, in an eloquent sympathetic speech in French, Professor Dr. Burkhardt in a brief but incisive and straightforward speech in German, and Dr. Lovett in a humorous description of the difficulties under which American medicine had until quite recent years laboured, returned thanks on behalf of the guests. The toast of "The Society of Apothecaries" was proposed by Dr. Norman Moore, and acknowledged by the Master, and thus one of the most pleasant functions of the Congress was brought to an all too early end, necessitated by the manifold other engagements which claimed the presence of most of the guests.

On Thursday evening, August 7th, the President and Council of the Royal College of Surgeons of England entertained a large company at a soirée in the College. The guests were received by the President, Sir Rickman J Godlee, and the Vice-Presidents, Mr. G. H. Makins and Sir Frederic Eve, in the Inner Hall. In the Conservator's Office an interesting collection of microscopical preparations from 1780 to 1812 was on view, and in Rooms VII and VIII. of the Museum there was an exhibition of historical and anthropological specimens, while Hunterian relics and other objects of much interest were shown in the Council Room. During the evening the band of the Royal Artillery played a selection of music in Room I, and an excellent vocal concert was given in the Lecture Theatre. Refreshments were provided in the library. A very large number of ladies were present, and many nationalities were represented among the members of the Congress attending the soirée. The greatest interest was taken in the finely displayed and arranged treasures of the Hunterian Museum, and even the upper galleries were frequented by visitors throughout the evening.

The conversazione at the Royal Army Medical College, Grosvenor-road, S.W., on Thursday, August 7th, was a brilliant function, attended during the course of the evening by some 800 people. Surgeon-General Sir Launcelot Gubbins, Director-General, A.M.S., and Lady Gubbins received the guests, who, after partaking of refreshments, were permitted to thoroughly inspect the College, where many striking exhibits were on view, comprising service rations of various armies, with demonstrations of the damage by insects to which they are subject, demonstrations of X ray and high-frequency electricity, methods of water purification and food analysis, clothing and equipment, demonstrations of various tropical diseases and microscopical specimens, field medical and surgical equipment, and so forth. A feature that attracted considerable attention was a cinematograph display of trypanosomes, amœbæ, bacteria, and spirochætæ, affording a very graphic conception of the struggle for existence in the infinitesimal world. The band of the Royal Army Medical Corps performed an excellent programme of music. The various uniforms of the military medical services of many countries contributed to the brilliancy of the scene.

On Friday evening, August 8th, the Corporation of London gave a magnificent conversazione at the Guildhall to welcome the members of the Congress. The entertainment, which was worthy of the City's reputation for hospitality, had been organised on a very large scale by a special reception committee of the Corporation under the chairmanship of Mr. H. H. Wells. The Lord Mayor, the Right Hon. Sir David Burnett, accompanied by the Sheriffs of the City of London, received the guests in the Guildhall. The spectacle in the Library, Art Gallery, Council Chamber, and Guildhall was a very brilliant one. Concerts and entertainments were given in the various rooms open for the reception, and there was dancing from 9 o'clock in the Library. In the Guildhall a selection of the Corporation plate from the Mansion House was displayed, and the museum and collection of ancient clocks and watches belonging to the Clockmakers' Company were also open for inspection. An additional delight for those to whom the City's treasures are unfamiliar was the exhibition of the ancient charters granted to the City of London by William I., Henry II., Richard I., and John, and the collection of manuscripts, medals, coins, and badges dating from the thirteenth century. Of the larger entertainments given in honour of the Congress the Guildhall conversazione must be accounted one of the most impressive and enjoyable.

A special feature of the entertainments of the Congress was the garden party at Windsor Castle at the invitation of the King on Saturday, August 9th. As the invitations were perforce limited to 2000, tickets were at first allotted on priority of application, but when it was found that the applicants would very greatly exceed those for whom it would be possible to make adequate provision, the distribution was proceeded with by ballot. Some half-dozen special trains, at intervals of a few minutes, were run between 2 and 3 P.M. from the Great Western Station at Paddington direct to Windsor for a return fare of 2*s.* On arrival at the Castle the King's guests were received at the grand entrance by the Lord Chamberlain on behalf of His Majesty, the Comptroller of the Household, the Deputy Master of the Household, the Surveyor of the King's Pictures (Mr. Lionel Cust), the Keeper of the King's Armoury (Mr. Guy Laking), and the Inspector of the Palace (Mr. G. E. Miles). When once the difficulties of the barrier at the entrance were surmounted and the crowd found themselves in the Great Quadrangle between the State apartments and His Majesty's private apartments, everything proceeded smoothly, though the carefully prescribed arrangements for taking the guests over the State apartments in parties of 100, each under the charge of a steward, had to be abandoned, the visitors following in a continuous stream. The apartments shown were the whole of the suite used by His Majesty when entertaining Sovereigns paying visits of State. Entering from the North Terrace the visitors passed up the grand staircase through the State Anteroom, the Picture Gallery, the Van Dyck Room, the Queen's Audience Chamber, the Queen's Presence Chamber, the Guard Room, St. George's Hall (decorated with the armorial shields of all the Knights of the Garter from its foundation), the Grand Reception Room decorated with Gobelin Tapestry depicting the story of Jason and Medea, to the Throne Room. Thence by the Ante-Throne Room, the Waterloo Chamber, the Grand vestibule and the grand staircase, out into the Italian gardens, where the band of the Coldstream Guards was playing. Passing thence on to the East Lawn, this magnificent pleasaunce attracted universal admiration. In large marquees an elaborate tea, with champagne, ices, and abundant delicacies, was provided, the tables being decorated with flowers from the Royal gardens. The spectacle was one of extraordinary vivacity, presenting the most democratic assemblage that has ever occupied that lawn. The visitors dispersed, many strolling over the demesne, while others congregated in groups greeting old friends and making new ones. Everyone seemed inclined to stay to the full limit of time. On passing through the castle to return to the station the visitors were shown the Albert Memorial Chapel and St. George's Chapel. Fortunately, the weather favoured the *fête*, and the entertainment provided was royal.

A delightfully intimate and admirably managed excursion was the river party on Sunday, August 10th, on the invitation of the President (Dr. Reginald Morton), officers, and members of the Section of Electro-therapeutics of the Royal Society of Medicine. The guests to the number of 160 embarked on the launch *Royalty* at Westminster Pier at 10.30 A.M., and proceeded up the river, calling at Richmond to take on a few who had failed to catch the boat at Westminster. Among the foreigners of note present may be mentioned Dr. Albers Schönberg (Hamburg), Professor Kienböck (Vienna), Professor Bergonié (Bordeaux), Professor Béclère (Paris), Professor Haret (Paris), Dr. Abbe (New York), Dr. Haenisch (Hamburg), Dr. Leroux (Paris), and Dr. Alban Kohler (Wiesbaden). Sir James Mackenzie-Davidson, President of the Section of Radiology of the Congress, was also present. The day was fine, and the genial care of Dr. Reginald Morton and Mr. Archibald Reid, the chief organising spirits, charmingly seconded by Mrs. Morton and Mrs. Reid, for the comfort of their guests was greatly appreciated by all. An excellent luncheon was served in three groups—at 12, 1, and 2 respectively. After passing Richmond the festal character of the river and the beautifully decorated houseboats attracted general attention. It had been intended to go up as far as Shepperton, but on reaching Sunbury it was considered desirable owing to the lateness of the hour to return. On the homeward journey afternoon tea was served. The party reached Westminster pier about 7.30 after a trip which, it was universally conceded, would long remain an outstanding memory of the Congress.

On Monday morning, August 11th, a deputation of the French members of Congress were met at the Royal College of Surgeons of England by the President, Sir Rickman Godlee, when they placed a wreath beneath the bust of Lister, newly executed by Sir Thomas Brock. It was a grave and charming ceremony, illustrating in a convincing manner the warm relations existing between the medical professions in France and England as well as the reality, so far as the educated classes are concerned, of the *entente cordiale*. The French medical men, whom we have been delighted to welcome among us, had expressed a desire to do homage to the memory of Lord Lister, and they accordingly subscribed for a beautiful memorial wreath of red roses tied by a broad tricolour ribbon, suitably inscribed, which was laid before the bust of the great surgeon by a deputation of distinguished French physicians and surgeons. Sir Rickman Godlee, speaking in French, welcomed the deputation, which was accompanied by ladies, and remarking on the bust, said that it erred only in one particular, the too great length of the *favoris*, which required to be *raccourois*. Lord Lister, as we remember him, wore short side-whiskers, as did most of the scientific men of his epoch, a prosaic appearance not easily treated by memorial art. The spokesman, on behalf of the French deputation, delivered one of those easy, fraternal, and delightful little speeches so familiar to frequenters of similar ceremonies at the Institut or elsewhere in Paris. He spoke of Lister as following always the Light of Truth, and referred with eloquence to that grand moment when, before an audience of the learned, Pasteur publicly embraced Lister. The picture recording this incident hangs in the hall of the Sorbonne, and the speaker was uncertain whether it rose to the height of the occasion. They afterwards looked at a collection of Lister's manuscripts, drawings, and instruments which had been prepared for their inspection.

At the session on Monday, August 11th, of the Section of Tropical Medicine and Hygiene, Professor Blanchard presented a large gold medallion to Sir Patrick Manson, as an acknowledgment from France of the value of his work in the prevention of malaria. The medallion bears on it a portrait of Sir Patrick Manson, and is the work of M. J. Richet.

Sir Thomas Barlow, as President of the Congress, gave a dinner on Monday night, August 11th, at the Savoy Hotel, at which some 200 foreign and British members of the Congress and distinguished guests were entertained. Among those present, in addition to the delegates from foreign Governments and the presidents of the different sections, and the officers of the Congress, may be mentioned the Archbishop of Canterbury, the Cardinal Archbishop of Westminster, the Dean of St. Paul's, the American Ambassador, the Lord Mayor of London, Lord Haldane, Mr. John Burns, Mr. McKenna, Mr. Sydney Buxton, Sir Archibald Geikie, Sir George Reid, Professor Ehrlich, Professor Harvey Cushing, Professor Chauffard, Lord Strathcona, Professor W. Bateson, Sir Rickman Godlee, Sir T. Clifford Allbutt, and Sir William Osler. The dinner was quite informal, and there was no toast list. Sir Thomas Barlow, after proposing the loyal toast, briefly welcomed his guests, while bidding them adieu at the close of the Congress. He assured all the foreign visitors to London that they had been most heartily welcome, and thought that no endeavour had been spared to make that apparent. Alluding to the distinguished persons present, he said that he had no intention of inviting any of them to make a speech, while he was gratified that they had come to testify by their presence to the far-reaching nature of the proceedings at the Congress and its great national importance. Dr. Lucas-Championnière, speaking in English, thanked Sir Thomas Barlow for his words, and British hosts generally for their hospitality, while Professor Ehrlich, in proposing Sir Thomas Barlow's health, testified to the admirable manner in which the Congress had been organised and to the perpetual feeling of friendliness which such gatherings must always arouse. During dinner the Westminster Singers delighted the audience with their admirable rendering of old British songs.

The following is the list of the 25 official delegates from foreign countries who attended the General Meetings of the Congress and spoke on behalf of their respective nations: United States of America, Dr. William Thayer; Austria, Professor Ritter von Haberler; Argentina, Dr. Eliseo Segura; Belgium, Professor Heger; Brazil, Professor Marcos Cavalcanti; China, Dr. Tuck; Cuba, Dr. Aristides Agramonte; Denmark, Dr. Madsen; France, M. Landouzy; Germany, His Excellency Professor v. Schjerning; Guatemala, Dr. Azurdia; Holland, Dr. Rijnberk; Hungary, Professor Dr. Emil de Grosz; Italy, Professor Bianchi; Japan, Dr. Takamina; Mexico, Dr. Jose Larumbé; Monaco, Dr. Caillaud; Nicaragua, Dr. Alejandro Cesar; Norway, Professor Dr. Uchermann; Portugal, Dr. Luiz de Freitas Viegas; Russia, General Dr. Rapschewsky; Servia, Dr. Subbotitch; Spain, Dr. Recasius; Switzerland, Professor Sahli; Sweden, Professor Essen Möller.

At the conversazione given by Lord and Lady Strathcona to the members of the Congress on August 11th the night was fine and the Botanical Gardens glowed with myriads of fairy lamps, outlining shrubberies and trees and flower beds. The walks were arched with Chinese lanterns, pendant one above another from long bamboo canes rising from the ground on either side and almost meeting over the centre, like gigantic incandescent Solomon's seals, and at the end of the walk the palm house gleamed iridescent as mother-of-pearl. The shadowy figures flitting about in the faint light of the lamps enhanced the weird beauty of the scene. The Royal Artillery Band and the Prince's Red Band added the charm of music; pipers from the Scots Guards played and danced; while the Folk Song Quartet rendered a selection of ballads with a sweetness that blended admirably with the eerie surroundings. Light refreshments were served in tents in the Gardens and in the Fellows' Dining-room. Lord and Lady Strathcona themselves received their guests, who approached, for lack of space, in a sinuous queue. Approximately 5000 persons were present. It was a charming *fête*.

Under the banner of the Æsculapius Lodge, No. 2410, and supported by the Rahere, the Cavendish, the Sancta Maria, the Middlesex Hospital, the London Hospital, the Chère Reine, the King's College Hospital, and the Lanesborough Lodges, a meeting of medical Freemasons in connexion with the International Congress of Medicine took place at Freemasons' Hall on Monday afternoon, when nearly 300 members of the craft were present, including a large number of foreign and colonial brethren. A lodge was opened by the W. M. (Dr. A. P. Beddard) and the officers of the Æsculapius Lodge, and later the Pro-Grand Master of England, Lord Ampthill, occupied the chair, Mr. Edmund Owen, P.G.D., and Mr. Ernest Clarke, P.G.D., acting as S.W. and J.W. respectively. Lord Ampthill welcomed the brethren present in the name of the Grand Master, the Duke of Connaught, and claimed that the three great principles on which the order was founded were carried out to the fullest extent by members of the medical profession. Addresses were afterwards given in French and German, and several representatives of foreign and colonial lodges also spoke. Tea and coffee were served from 3.30 to 4.30, and the arrangements for the meeting were admirably organised by Dr. R. J. Probyn-Williams, P.G.D.

THE INTERNATIONAL ASSOCIATION OF MEDICAL MUSEUMS.

Highly successful meetings of this association took place at the Royal College of Surgeons and the Imperial College of Science on August 5th, 6th, and 7th last in conjunction with the Seventeenth International Congress of Medicine. There was a large and representative international attendance.

The meeting was opened by Professor ARTHUR KEITH, honorary president, who, as chairman of the Museum Committee of the Congress and curator of the museum of the Royal College of Surgeons, welcomed the members to London, and introduced the President, Professor A. S. WARTHIN, of Ann Arbor, Mich., who gave an address upon the Ideals and Functions of the International Association of Medical Museums. The association had entered upon its seventh year of existence, and this was its second triennial international meeting. During this time it had grown from small beginnings to a membership of over 200, including among them the leading pathologists and anatomists throughout the world. It was an Association of Medical Museums, its scope extending beyond pathology into all the fields of medicine, particularly in the direction of preventive medicine and hygiene. At the present time there was a strong demand for a museum of preventive medicine on a popular basis, such as is illustrated by the travelling museums of the campaign against tuberculosis. The organisation of such popular museums should be one of the special functions of this Association, as also the discussion of methods of demonstrative teaching of all kinds. The need for a society in which medical teaching in general, both demonstrative and otherwise, could be considered, was pointed out, and the plea made that this society might widen its scope to include this field. The most important side of this Association was its international character and at this meeting the organisation of the international body and of its local or sectional societies was to be thoroughly worked out.

Sir WILLIAM OSLER opened a discussion on the improved organisation of this Association on the international basis. He prefaced his remarks by a tribute to the memory of the late Sir Jonathan Hutchinson, whose recent death had removed from among us one who had been for many years a pioneer worker in the field of medical museums, a collector in the most scientific sense, whose remarkable breadth of interest and clearness of [illegible] teacher of the highest type. [illegible] formation of the popular [illegible] had rightly described as one of the special functions of this Association, the life work of this great man was of interest, and all those who could visit his wonderful popular museum at Haslemere would learn there the results which careful classification of well-chosen material along any line can bring. Returning to the subject, Sir William Osler believed in the usefulness of the Museums Association as an international association of exchange of material and of discussion of methods, both of technique and of demonstrative teaching. There were difficulties, of course, such as the geographical one, in its international development, but he thought the plan suggested practicable of a central bureau which would control the different branches in various countries and hold meetings in the country where the International Medical Congress was held. Each country should be allowed a certain amount of autonomy in managing its own society, and under these conditions a highly useful work could be carried on.

Professor LUDWIG ASCHOFF (Freiburg) spoke warmly in favour of the aims and objects of this Association. He saw no difficulty in the international organisation, except as regards the international fee, which should be reduced somewhat as soon as the membership increased sufficiently to justify this. He recommended that a propaganda for the extension of membership be instituted by the local societies in the various countries, and to this end that copies of the President's address be translated and circulated.

Professor SPALTEHOLZ (Leipzig), Professor W. G. MACCALLUM (New York), Professor J. G. ADAMI, Professor F. J. SHEPHERD (Montreal), and others participated in the discussion, and the following recommendations for the international organisation were adopted:

1. There shall be a central international body with international officers, and local or sectional societies with local officers, one society in each country represented.

2. The meetings of the international body shall be held at the same [illegible] society.

3. The officers of the local societies may be elected annually or [illegible] shall consist of a president and secretary and as many [illegible]

Mr. H. W. ARMIT, secretary of the Museum Committee of the Congress, dwelt upon the relation which such an association as this might have to the meetings of the International Congress of Medicine. After a prolonged experience in the organisation of congress museums, the conclusion had been forced upon him that efficiency was sacrificed, much time lost, and valuable experience wasted by the placing of arrangements at each Congress in the hands of a new set of comparatively untrained persons. In the International Association of Medical Museums we have a society of museum experts which seems peculiarly fitted to undertake the organisation of the Congress Museum as a whole. I[illegible] seconded by Professor [illegible] organisation of [illegible]ngress of Medicine be entrusted to the International Association of Medical Museums."

The secretary was instructed to write to the secretary of the standing committee of the Congress communicating the resolution to him and requesting that the executive of the association be put in communication with the national committee or government of the country where the next meeting of the Congress will be held.

The following officers of the international body were elected:—President: Professor Ludwig Aschoff (Freiburg). First Vice-President: *Professor Arthur Keith (London).* Second Vice-President: Professor Pierre Marie (Paris). Third Vice-President: Professor R. M. Pearce (Philadelphia). Secretary-Treasurer: Dr. Maude E. Abbott (Montreal, Canada). Councillors: Sir William Osler, Bart. (England), Professor J. G. Adami (Canada), Professor A. S. Warthin (United States), Professor Bernard Fischer (Germany), Professor Paul Courmont (France), Professor J. Fibiger (Denmark), Professor Harbitz (Norway), Professor Askanazy (Switzerland), Dr. de Josselin de Jong (Holland), Dr. René Sand (Belgium).

The Dutch members present declared the following local officers elected for the Holland Section:—*President:* Dr. Georgine Loden Van Heumen. *Secretary:* Dr. *Ariens* Kappers. First Vice-President: Dr. de Josselin de Jong.

A hearty vote of thanks was tendered to Professor Keith and Dr. Armit for their courteous and efficient coöperation in the arrangements for the *London meeting.*

A very interesting programme consisting of papers and demonstrations along the lines of museum and microscopic technique was successfully *carried out.*

Professor SPALTEHOLZ demonstrated an extremely beautiful series of preparations of various organs and tissues [illegible] whereby [illegible] slide demonstration illustrating the staining of living tissues cultivated *in vitro.*

Dr. O. F. SILVESTER (Princeton, New Jersey) demonstrated methods of mounting very delicate material by attaching the specimen by means of glass pins to sheets of wax.

A new method of maceration and teasing was given by Professor G. C. HUBER (Michigan, U.S.A.), by means of which he has been able to isolate the entire renal and seminiferous tubules. New forms of cement for sealing museum jars were announced by Mr. WM. MUIR and E. L. JUDAH (Montreal, Canada) and Dr. COBURN (Pittsburg, U.S.A.).

A most interesting symposium on the staining of nerve fibres and cells occupied the greater part of Thursday's session, new and valuable methods being announced by Dr. Georgine Luden van Heumen (Munich), Dr. C. A. U. Kappers (Amsterdam), and Dr. René Sand (Brussels).

Professor Adolph Meyer (Johns Hopkins University) showed three beautiful glass reconstruction models of the human brain.

Professor Wahlby (Cairo, Egypt) demonstrated very fully his methods of corrosion by which the finest ramifications of the body cavities and the vascular system can be demonstrated.

Other papers presented were relative to exhibits in the section of Museum Technique of the Congress Museum by Dr. E. C. Rosenow (Chicago), representing the pathology and etiology of endocarditis, Professor Delépine (Manchester), illustrating various types of infectious diseases, and Dr. A. A. Bruère (Montreal), showing mounted colonies of fungi in gelatine plate cultures sealed with paraffin.

THE SECTIONS.

Sections I. and III.—JOINT SESSION OF THE SECTION OF ANATOMY AND EMBRYOLOGY WITH THE SECTION OF GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY.

Thursday, August 7th.

President, Professor Arthur Thomson.

Discussion on the Excitatory and Connecting Muscular System of the Heart.

The President of Section I. (Anatomy and Embryology), Professor Arthur Thomson (Oxford), introduced the reporters to the meeting, and in his opening address welcomed the members of the two sections which were to take part in the discussion.

Dr. Ivy Mackenzie (Glasgow) gave an abstract of his report which dealt with the Comparative Anatomy of the Excitatory and Connecting Muscular System of the Heart. He pointed out how variable was the development of this system not only in different classes but even in different species; and he traced the evolution of the undifferentiated heart tissue from the simple condition in the fish to the scattered and complicated condition in the mammal. This evolution took place hand in hand, and was indeed caused by the growing complexity of the heart chambers in the higher orders. Dr. Mackenzie pointed out, however, that no matter how this tissue was disposed in the heart wall and to whatever degree its scattering and complexity was carried, it always retained its own distinctive features, among which was its abundant nerve-supply, which differentiated it from heart muscle fibres to which nerve terminations were difficult or impossible to trace.

Dr. O. Josué (Paris) gave an abstract of his report on Les Localisations Cardiaques. The speaker directed particular attention to the clinical aspect of the question, and demonstrated that clinical experience dictated the belief that the heart mass was composed of different kinds of musculature with different physiological rôles to discharge. Pathological lesions made this clear. Lesions of the myocardium, even when very small, were capable of producing profound clinical manifestations, whilst on the other hand extensive lesions might produce very little disturbance. The localisation of cardiac myocardial lesions determined the clinical symptoms.

Dr. Thomas Lewis (London) demonstrated his report on the Pacemaker of the Mammalian Heart. This demonstration was for the most part concerned with an explanation of the methods of research. In the simple non-mammalian heart the anatomical conditions rendered research more easy, for with the electrocardiogram the actual progress of the process of contraction may be studied. Experiments were detailed which showed that by an artificial excitation a cardiographic tracing could be produced similar to that given by a normal beat. This occurred only when one particular point was chosen for excitation, and this point corresponded anatomically with the site of the sinu-auricular node. Dr. Lewis then detailed experiments dealing with damage or excision of the node or of the *a.-v.* bundle, showing that the difference of method accounted for the different results obtained by various investigators.

Professor Külbs (Berlin) then read his report on the Anatomy of the Bundles of the Heart. This report dealt exhaustively with the condition found in the hearts of different zoological types. In the fish with one auricle and one ventricle a simple "funnel" transmits the musculature of the auricle to the ventricle. In amphibia and reptiles with two auricles and one ventricle the "funnel" becomes divided into two parts. In birds with two auricles and two ventricles two separate "funnels" exist, joined only at the interventricular septum. In mammals the complete system consists of (1) the Aschoff-Tawara node, (2) the bundle of His, and (3) the extension from this which runs beneath the endocardium of both ventricles. In fish, amphibia, and reptiles the differentiation of this system from heart muscle is by no means so complete as it is in birds and mammals.

Dr. A. F. Stanley Kent (Bristol), in giving the first independent paper, laid stress on the need to study more attentively the possibility of other connexions between auricle and ventricle than that furnished by the *a.-v.* bundle itself. Clinical cases and actual anatomical investigation showed that other connexions existed, and that neuromuscular elements were present which could function at times independently of the main bundle.

Dr. Louis Faugères Bishop (New York) spoke in favour of recognising functional disorders of the structures of the heart altogether apart from anatomic changes. Toxicardia, possibly due to particular protein derivatives to which the heart has become sensitive, accounted for nine-tenths of the cases met with clinically. Treatment demonstrated the correctness of these views. No doubt these toxicardia cases, which had a purely functional initial stage, proceeded to anatomic changes; but it was essential for the clinician to recognise that there *was* a primary functional stage.

Professor Arthur Keith (London) entered a plea for further study of the function of the bundle, for he considered it by no means certain that conductivity alone was the rôle of this structure. He advised research being directed towards other organs, such as the stomach, where there was evidence of similar connexions and mechanisms in the musculature.

Dr. Alexander Morison (London) made reference to the disposition of the nodal tissue in a malformed heart of which he had made an exhaustive study.

Dr. C. E. Lea (Manchester) and later, Professor K. F. Wenckebach (Strassburg) produced clinical evidence that the bundle was no mere connecting bond, that other functions were in all probability lodged in it, and that the condition of the ventricle to respond to a transmitted stimulation had to be reckoned with.

Professor L. Muskens (Amsterdam) and Dr. A. D. Hirschfelder (Baltimore) dwelt especially upon experiments carried out on the heart of frogs. Professor P. L. Aschoff (Freiburg) and Professor A. D. Waller (London) having spoken, the reporters replied.

Section III.—GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY.

Wednesday, August 6th.

President, Professor S. G. Shattock (London).

The President opened the proceedings by welcoming the members of the section, and then in a short introductory address said that one thing all must have long since discovered from personal experience was the large proportion of work which was unattended with any positive result. The tentative questions which when put to the test of experiment received negative answers would, if added up, far outnumber the contrary. How much brilliant and promising work had they not all designed, the results of which had never been recorded because they had fallen into the barren category. In a certain sense they could not be dissatisfied with such negations, since something that was deemed possible had been disproved, and the way cleared, in the same degree, to the access of positive truth. Human biology was unique in that every form of energy in the universe was concerned and took part in the final phenomenon of life. The explanation of what one might call this "negative science" (from the "discoveries" in which not even the greatest were exempt) was, of course, the incalculable complexity of what was investigated, as contrasted with the limitations of the researching instrument—the investigator. One ever-present temptation arising from such a state of things, and one to which they all in some degree succumbed, was to substitute, of course without intention, conjecture and verbal formulæ for disappointed knowledge. Let them see to it that in the meetings of that section they overcame as far as possible their common failing.

The PRESIDENT then read a paper on

Morbid Thickening of the Calvaria and the Reconstruction of Bone once Diseased: a Pathological Basis for the Study of the Thickening Observed in Certain Pleiocene Skulls.

He referred particularly to the recently discovered Piltdown skull which was uniformly thickened, though the osseous tissue was not diseased; yet it opened up the question whether the bone had been reconstructed after having been thickened by some previous morbid state. In the Royal College of Surgeons of England was a fossilised specimen showing osteitis deformans, which had been obtained by John Hunter. He excluded syphilis in European specimens of the pleiocene period, but agreed with Professor Elliot Smith that there was evidence of syphilitic disease in the bones from ancient Egypt. He illustrated the reconstruction of bone in the case of inherited syphilis and rachitis. His description included acromegaly, leontiasis ossea, and hypertrophic pulmonary osteoarthropathy. In osteitis deformans no reconstruction ever took place. In the long bones reconstruction was but rarely seen in syphilitic enlargement and sclerosis, but at times a cancellous tissue might replace the sclerosis. The Piltdown skull, he held, was not syphilitic, nor was it a case of osteitis deformans, and the absence of frontal thickening showed that it was not from an insane individual.

Professor J. G. ADAMI (Montreal) read a paper on Hyperblastosis and its Relationship to Blastomatous Growth (true tumours)

Dr. E. F. BASHFORD (London) communicated a paper on

Cell Variability during the Propagation of Tumours,

and said that the renewed interest in the well-known association between certain forms of cancer and chronic irritants was due to the wide recognition of the fact, demonstrated by the Imperial Cancer Research Fund, that various native races performed unintentional experiments on themselves. By irritating portions of the body they changed the liability of its several parts as known in Europeans. The irritants had nothing in common. The manner in which animals were treated in different parts of the world produced similar divergences in the parts of the animal body attacked. The action of the irritants was obviously indirect, because a large proportion escaped the disease in the part irritated, and it was not acute but chronic irritation which led to the development of cancer both in man and animals. The chronic irritation was equivalent to maintaining the tissues in a prolonged state of proliferation, and by transplanting the ready-made cancer cell it was possible to prolong this to any period desired, the idea being to observe whether it was constant or variable in its behaviour, and to infer from this what its behaviour in the animal attacked had been before it was discovered as a cancerous cell. Highly technical experiments were described, which demonstrated that the tumour cells either varied or remained constant in a large number of their properties. These variations were shown to be identical with those observed in tumours in their hosts of origin. Of particular significance was the fact that powers of progressive growth and dissemination in the body were acquired by losing the power—common both to normal tissue and some forms of tumour—of producing hindrances to their own growth.

Dr. J. A. MURRAY (London), in a paper on

The Heredity of Cancer in Mice,

described the results of the heredity experiments recently summarised in the report of the annual meeting of the Imperial Cancer Research Fund. The general conclusion that cancer was nearly twice as frequent in mice of which the mothers or grandmothers had died from cancer as in mice in which these ancestors were free of the disease was fur [illegible] calculation of [illegible] result.

I[illegible] on

The Repair of Fractures and the Influence of Various Operative Procedures.

His conclusions were as follows:—1. Screws which merely bit into the side of bone were unsuitable for treatment, as they rapidly loosened by a process of bone absorption if subjected to much tension. 2. Absolute fixation of fractured ends was conducive to good repair. 3. The only mechanical contrivances for uniting bones were pins, nuts, &c., which perforated the entire bone. 4. Great mobility was likely to produce a false joint, especially in a single bone like the femur. 5. Marked mobility caused excess of callus. 6. Metallic magnesium was absorbed and caused great callus excess. 7. Indirect methods of fixation gave the most ideal results, and this was the only method possible when dealing with compound and comminuted cases. 8. The periosteum had no power of forming callus or new bone. 9. The periosteum was of value as the chief blood-supply to the callus and in limiting its extent. 10. Active callus and bone formation always occurred from the broken surface of the bone, and every small fragment acted as a centre of new bone growth.

THURSDAY, AUGUST 7TH.

Professor L. ASCHOFF (Freiburg) read a paper on

The Thymus Gland.

His work pointed to the gland having some relation to the growth of bones. Its removal in young animals (rats and guinea-pigs) had led to changes indistinguishable from those in human rickets, the animals showing improper growth. There occurred also enlargement of the thyroid gland. He had demonstrated also the power of the thymus to regenerate. After partial thymectomy in rabbits there occurred a rapid regeneration, so that in a few days numerous cells and nuclei appeared; the so-called embryonic lymph cells became transformed into the true thymus cells, so these must not be regarded as true lymph cells, for the thymus was an epithelial organ. Its removal in human beings led to a "cachexia thymepriva."

Professor W. G. MACCALLUM (Columbia University, U.S.A.), reported some

Experimental Studies on Tetany

which he had produced after extirpation of the parathyroid gland. He concluded that tetany was the result of some abnormal change in the circulating blood which affected the extremities. By anastomosing vessels of affected and normal animals he had been able to transpose at will the blood of tetany animals or that of normal animals so as to produce the condition of tetany or to cause a subsidence of the symptoms. Also he had produced tetany by using defibrinated blood of tetany animals and injecting into normal animals. As to the nature of this blood change he could only hypothesise, and he considered there was evidence that it was associated with an excess of calcium bodies. Certainly there was no definite evidence of a circulating poison of the nature of an alkaloid.

Dr. C. BOLTON (London) gave an account of his long-continued work on

The Pathology of Gastric Ulcer,

illustrated with numerous lantern slides. He had most recently devoted attention to acute ulcers, which he considered more frequent than was usually thought. Most of these healed spontaneously, though a few, as he illustrated, extend. Experimenting with his gastrotoxins, he concluded that there was no necessity to have an initial lesion. Of great importance was the presence of an excess of acid (hyperacidity)—even acetic acid—in association with bacterial toxæmia. His diet experiments showed that the ulcer spread much more rapidly and healed much more slowly on a meat diet than on a milk diet.

Dr. CHARLES SINGER (Heidelberg) summarised his work on the experimental production of

Gastric Ulcer in Rats,

which was published in THE LANCET of August 2nd, p. 279. His view as to the etiology was that ulcer could result from some unknown micro-organism which normally inhabited the intestinal canal, but only existed in the stomach under abnormal conditions.

Professor SHATTOCK reported some work carried out in collaboration with Dr. L. S. DUDGEON (London) on the

Vitality of Chemically Dried Protoplasm.

They had shown that some lowly forms of life—e.g., B. pyocyaneus—could be dried *in vacuo*, and if kept away from sunlight could remain potentially viable, and even virulent, indefinitely. At any rate, during the two years that the experiment had been in progress no change had occurred in the organisms. On exposure to air and sunlight, however, they rapidly died. Professor Shattock put forth the idea that every change of function implied some alteration of protoplasm, and there must be consequently as many varieties of protoplasm as there were functions. He pointed out, half in jest perhaps, the relation of these experiments to the question of immortality.

Dr. GNEZDA demonstrated slides dealing with the Histological Appearances of Cancer which had been treated with Aiphroalin.

SUBSECTION IIIA.—CHEMICAL PATHOLOGY.

THURSDAY, AUGUST 7TH.

President, Dr. F. GOWLAND HOPKINS (Cambridge).

The PRESIDENT, in welcoming the members of the section, stated that this meeting inaugurated the meetings of the subsection not only in this particular Congress, but in all International Medical Congresses, as this year was the first in which the subsection had been separated from the Section of General Pathology. Its formation was a recognition of the ever-increasing importance of chemical pathology, not only in research, but also in its clinical applications.

Dr. H. SCHAUMANN (Hamburg) opened a discussion on

Pathological Conditions due to Defects in Diet.

He pointed out that of late years ideas had completely changed as to what was necessary for a sufficient diet. Not only were the main nutritive substances—albumins, carbohydrates, fats, salts, and water—essential, but also certain other substances were necessary which were present in foodstuffs only in the minutest quantity. Such substances were probably very numerous and were at present mostly unknown, and one compound, vitamine, had recently been isolated in crystalline form. They were present in relatively large amounts in certain animal and vegetable matter, such as yeast, the pericarp of rice, barley, wheat, the brain, heart, and eggs of mammals and birds. They probably seldom exist in the free state, but were constituents of more complicated molecules, such as nucleins and phosphatids. Their absence gave rise to specific disorders in each case, such as beri-beri, scurvy, Möller-Barlow's disease, and pellagra. They were labile, being destroyed by long storage, long heating and cooking, alkalies, and micro-organisms, and were removed by such processes as husking and polishing rice, extraction by salt, lye, &c. As the methods of isolation were at present very imperfect they had not yet been obtained in a pure form; it was therefore impossible as yet to say whether their efficiency is or is not due in part to the phosphorised group of the whole molecule or not. Another explanation might be that the metabolism of phosphorus was especially assisted by them.

The PRESIDENT said that Dr. Schaumann had so thoroughly reviewed the present state of knowledge of the subject that he would confine himself to the more physiological aspect of the problem, and discuss the question, whether the normal growth of a young animal required of necessity factors in its dietary of which till recently no account had been taken. If the absence of these substances arrested growth, it was reasonable to suppose that they might also cause natural diseases of nutrition. He had himself worked almost exclusively on rats, always using large numbers of animals and ample controls. An artificial diet of pure proteins, fats, carbohydrates, and salts caused young rats to cease to grow within about 15 days, though a minute addition of certain tissue extracts and fractions of such extracts secured normal growth. Of the chemical nature of these substances little could at present be said, neither the vitamine of Dr. Funk nor the oryzanin of Suzuki maintaining growth for any appreciable time. His greatest success had up to the present been with phospho-tungstic precipitations. The substances did not seem to be basic in character or of the nature of lipoids. They were slightly soluble in alcohol, insoluble in ether, and easily disappeared during chemical manipulations. The additions that had been found sufficient had been free from the amino-acids, purin and pyramidin basis, and did not contain choline. With regard to salts, an artificial mixture was certainly not as efficient as the ash of mixed foodstuffs. This might be due to faint traces of such substances as fluorine or manganese in the food. An artificial salt mixture almost invariably caused in his experiments a peculiar condition of conjunctivitis allied to keratomalacia. Salts alone, however, were not the only factor, as in other experiments the additions given were entirely salt-free.

Dr. C. FUNK (London) stated that crude vitamine fraction could now be isolated without difficulty, and probably consisted of three separate fractions.

Professor IVAR BANG said that these researches were only in their infancy, and needed much more work.

Professor BENJAMIN MOORE (Liverpool) suggested that the effect of feeding the children of the poorest class on skim milk and bread adulterated by bleaching and other processes might partly be explained on the lines of the present discussion.

Professor BARGER, Dr. SIGMUND FRANKEL, and Dr. ALEXANDER HAIG also spoke.

After Dr. SCHAUMANN had replied, the general resolution on vivisection, which is being circulated in the Congress, was carried unanimously.

Afternoon Session.

Dr. E. LAQUEUR (Gröningen) had sent a paper which was read by Dr. FUNK, drawing attention to the close parallelism and possible identity of the processes of post-mortem autolysis and intravital protein metabolism.

In the discussion which followed it was agreed that the identity of the two processes was generally accepted by the most recent workers.

A paper by Dr. PINCUSSOHN (Berlin) was concerned with the reactions of ferments of the blood. It was pointed out that the blood of any given animal contained ferments which hydrolysed the peptone derivatives of its protein, but not those of foreign proteins. The latter, however, gave rise to the formation of a ferment which destroyed the protein itself.

Dr. A. GELARIE (Liverpool) read a paper claiming that a precursor of complement, "pro-complement," was probably the cause of anaphylaxis.

An animated discussion, opened by Dr. G. GRAHAM (London) and Dr. J. W. TREVAN (London), on the Analysis of Test Meals brought the proceedings to a close.

SECTION VI.—MEDICINE.

THURSDAY, AUGUST 7TH.

President, Sir WILLIAM OSLER, Bart. (Oxford).

THE proceedings were opened by the PRESIDENT with a few introductory observations. Over 200 members of the section were present, and the first paper they heard was Professor G. BANTI'S (Florence) exhaustive account of the

Clinical Aspects of Hæmolysis,

more particularly as they affected the spleen. In many patients with splenomegaly, as he pointed out, they found anæmia, and a great deal of work had been done that tended to prove that the anæmia in such patients was due to excessive hæmolysis that took place in the pathologically enlarged spleen. He made reference to the association of splenomegaly with cirrhosis, a combination which was familiar, by name if not *de visu*, to most medical men as Banti's disease. He summarised the work that had been done so extensively on the continent of Europe with hæmolytic serums, and noted that the spleens of animals treated with such serums showed changes very similar to those met with in the splenomegaly with anæmia of human beings.

Among the other speakers who illuminated this somewhat academic, or at any rate highly technical, subject was Professor CHAUFFARD (Paris), who ascribed an important rôle to the spleen in all the human diseases that were characterised by the occurrence of hæmolysis. He did good service by bringing out the fact that the enlargement of the spleen habitual in these cases might be either the cause of the hæmolysis or its effect. If it was the cause of the hæmolysis, clearly the condition would be improved and the anæmia cured by the operation of removing the spleen. If, on the other hand, it were an effect of the hæmolysis, splenectomy would only accelerate the patient's passage to the grave. How could one distinguish between the two cases, he asked, and how could one know when splenectomy was advisable? These questions he could not answer with any confidence himself, and he called for further investigation and information on the results of removal of the spleen; animal experiments had given contradictory results in the hands of different observers.

An interesting paper on

Duodenal and Pyloric Ulcers

was read by Professor C. A. EWALD (Berlin). He pronounced himself horrified by the statistics of British and American surgeons, who claimed to have proved that duodenal ulcer was a commoner, perhaps a far commoner, complaint than ulcer of the stomach. Reference to the post-mortem room statistics afforded no support to such surgical statements; in his own clinique he had had and treated 532 cases of gastric ulcer and 82 of duodenal ulcer during the three years 1910-11-12, and he quoted continental (European) statistics to prove that as a matter of fact gastric ulcer was quite six times as common as ulcer of the duodenum. Yet he was at pains to acquit the surgeons of intentional error in their statistics, and explained that their mistake arose, on the one hand, from the fact that they only met with the severe and the chronic cases of such ulceration and, on the other, from their habit of including among duodenal ulcers those ulcers that extended from the pylorus. Professor Ewald doubted whether regional or occupational factors could afford an explanation of the surgical statistics and the inferences surgeons drew from them. He further felt himself bound to dissent very strongly from the dictum of Sir Berkeley Moynihan, who said that a careful previous history was all that was needed to make the diagnosis of duodenal ulcer, and that it was not necessary to examine the patient before coming to a positive conclusion. Professor Ewald pointed out how cases of cholecystitis, appendicitis, tabes with gastric crises, or even severe neurasthenia, might find themselves exposed to operations for the cure of non-existent duodenal ulcers should such diagnostic criteria as Moynihan's be accepted as adequate. He himself laid particular stress on three or four points in diagnosing duodenal ulcer. 1. The long duration of the case, and the recurrence of pain two or more hours after food had been taken. 2 The presence of manifest or occult blood in the stools; repeated examinations might be called for before this blood could be demonstrated. 3. Hyperchlorhydria, which was almost constantly found, and might be seen even when the patient was fasting. 4. Skiagraphic examination of the stomach after a bismuth meal; the duodenum was then seen to fill up with unusual rapidity, the stomach was often not empty even after six hours, the gastric [illegible] itself [illegible] k) both disavowed the surgical statistics to which Professor Ewald had taken such exception, *so far as America was concerned*; while Professor R. SAUNDBY (Birmingham), though eager to advocate operative treatment in a large number of the cases of duodenal ulcer, expressed himself as not prepared to go as far in this direction as certain British surgeons of eminence.

Professor N. E. BRILL (New York) in the afternoon session read an interesting paper on

An Acute Infectious Disease Similar to, and perhaps a Modified Form of, Typhus Fever.

At the outset he was careful to explain to his audience that typhus fever was not the same as typhoid fever, better called enteric fever. His observations were made on 321 cases of this apparently new complaint, and after giving an admirable summary of its chief characteristics and drawing attention to the extraordinarily severe headache that was constantly present while the fever lasted, he gave a detailed account of the points in which it differed from the classical typhus fever so well described by Murchison and others 50 years ago. He laid stress on the complete absence of contagiousness characterising the new complaint; typhus fever, on the other hand, had always been notoriously catching. The new complaint, again, was practically never fatal; out of some 400 cases he had seen or collected only one had died. Typhus fever, on the other hand, was fatal to from 18 to 25 per cent. of the patients as a rule; in even the mildest of the typhus epidemics hitherto described the mortality had been as high as from 5 to 8 per cent. Owing to the lateness of the hour no general discussion of the paper could take place; but the upshot of the whole matter was that Professor Brill's disease may in all probability be set down as an unusually mild and benign form of typhus fever. The treatment of such fevers was better and more rational nowadays than it used to be in the older times, particularly in such countries as have well-organised fever hospitals and sanitary authorities. The importance of fresh air in preventing contagion was fully understood at the present time; and, finally, there was no doubt that the specific infectious fevers (of which typhus was one) might readily change their type and become attenuated in the course of time for reasons that they did not fully understand.

SECTION VII.—SURGERY.

WEDNESDAY, AUGUST 6TH.

President, Sir WILLIAM WATSON CHEYNE, Bart., C.B. (London.)

The section was opened by a short address of welcome from the PRESIDENT, who proceeded to speak of the great changes which had taken place in surgery since the last meeting in London 32 years ago Of the 73 surgeons who then formed the council of the section only some 10 or 11 remained. He showed that many operations which are now commonplaces were in those days only beginning to attract attention, and he concluded with a eulogy of Lister and his work. He was followed by Dr LUCAS-CHAMPIONNIÈRE (Paris), Professor Freiherr VON EISELSBERG (Berlin), and Professor BLOCH (Copenhagen), all of whom spoke in warm terms of the services rendered to surgery by Lister, and they mentioned their personal experience of him and his work.

On Operating on Exhausted Patients.

Dr. G. LE FILLIATRE (Paris) read a paper on the value of his method in operating on patients very exhausted or cachectic, with especial reference to gastro-enterostomy. He considered that the greater part of the shock in a severe operation was due to the anæsthetic, and therefore it was important to avoid a general anæsthetic as much as possible. He described the results of employing spinal anæsthesia, and mentioned that in 94 laparotomies there had been only four deaths, although in many of the cases severe visceral disease or great weakness had been present.—Professor DOLLINGER (Budapest) agreed that very extensive operations could be performed under local anæsthesia.—Professor VON EISELSBERG pointed out that with a general anæsthetic the mental effect of the operation was diminished.—Professor HARTMANN (Paris) mentioned that in abdominal operations the only pain was in the incision of the abdominal wall, and that on cutting the viscera no pain was felt.

Mr. HERBERT J. PATERSON (London) read a paper on

The Physiology of Gastro-jejunostomy.

He pointed out that at the present time the opinion was commonly held that the action of a gastro-jejunostomy was entirely mechanical, that it allowed the stomach to empty its contents more readily, and that in the case of a duodenal ulcer it prevented the passage of the gastric contents over the ulcerated surface. This theory could not, however, account for those cases in which there was no obstruction at the pylorus, or for those cases in which the ulcer was in the lesser curvature or near the cardia. He had proved by a number of examinations of the chlorides of gastric juice that the operation of gastro-jejunostomy reduced the total chlorides while it increased the fixed chlorides; these and other considerations showed that the action of the operation could not be merely mechanical, and therefore the operation was justifiable in cases without pyloric obstruction, and for cases of ulceration in any part of the stomach.

Dr. EDWARD ARCHIBALD (Montreal) read a paper on

A New Factor in the Causation of Pancreatitis.

He drew attention to the fact that while it was certain that pancreatitis was sometimes due to blocking of the papilla of Vater by a calculus, in many cases of this disease no calculus was present. By means of a number of experiments he had proved that a sphincter exists in the papilla of Vater, that it was capable of withstanding great pressure, and that spasm of it might be produced reflexly by irritation from the stomach or duodenum. He further showed that this spasm could cause a fluid in the common bile-duct to pass into the ducts of the pancreas. Clinical evidence was also produced, and a number of slides helped to make the contentions of the author clear.

Dr. L. MEYER (Brussels) read a paper on

Transverse Incisions in Abdominal Surgery.

He claimed that transverse incisions gave better access to the abdominal contents, whether in the upper or the lower parts of the abdomen.

A paper on

The Elevated Head and Trunk Position in the Surgical Treatment of Abdominal Lesions,

by Dr. RUSSELL S. FOWLER (Brooklyn), was read in his absence by Professor J. A. POLAK (Brooklyn). The paper described the unsatisfactory results which had been obtained before 1900 with all the methods then employed. In that year the elevated position of the body was first adopted, and at once the results began to improve. While the duration after the onset of the peritonitis was of the first importance—for the earlier the operation was done the better—yet the elevated position was of great importance. One reason for this was the fact that in the upper part of the abdomen there were many stomata in the peritoneum; in the pelvis there were none, and therefore the risk of absorption of germs and their septic products was very much less. It was necessary to have a large glass drainage-tube passing to the base of the pelvis, and this should be aspirated every few hours. With the elevated position the respiration is easier, and pulmonary complications are less frequent.

Dr. WALTER F. BURROWS (New York) read a paper on

Post-operative Intestinal Stasis and the Intra-abdominal Use of Oil.

He held that adhesions form rapidly after operation on the abdomen, and that much of the discomfort and danger after such operations might be obviated by the introduction of oil into the peritoneal cavity. This opinion was based on a number of experiments on animals, and on one case in a human being. He had found that of all the substances which he had tried the best was a purified liquid petrolatum; it should not be too thin or it might diffuse too rapidly. Some six or eight ounces could be introduced without any harm; septic absorption was lessened, and adhesions had much less tendency to form.—In reply to Mr. W. G. SPENCER (London) he said that the oil was sterilised by boiling and then was cooled to the temperature desired.

Professor L. KRYNSKI (Warsaw) read a paper on

Cirrhosis of the Mesentery as a Clinical Entity.

He described a case which he had seen. The patient had had severe abdominal symptoms, and when the abdomen was opened it was found that the bowel was healthy and that no tuberculosis was present, but that the mesentery was greatly thickened so as to form a hard mass, and on microscopic examination it was discovered that there was a great increase in the amount of connective tissue present.

THURSDAY, AUGUST 7TH.

Professor R. BASTIANELLI (Rome) opened a discussion on

The Operative Treatment of Malignant Disease of the Large Intestine (excluding the Rectum).

He said that recently doubts had been raised as to the extent to which malignant disease of the bowel extended beyond the visible disease, and it appeared possible that more should be removed than was customary. The first point in the treatment as to which all were agreed now was that, as a rule, no radical treatment should be allowed during obstruction, but to this rule tumours of the cæcum were an exception. He considered it wise in all cases of obstruction of the large intestine to open the abdomen on the right side and to make an artificial anus in the cæcum, though if the growth were in the cæcum the ileum might be anastomosed to the sigmoid. He considered that a temporary artificial anus was much better in the cæcum than elsewhere, but the opening should be large. The risk of doing a primary resection of the large intestine was due to the fact that the anastomosis was more difficult than in the small intestine, and there was a chance of the blocking of the bowel with solid fæcal masses. Another point in favour of a cæcal anus was that it was easily closed when the time came. As to the results, since 1900 he had had 84 cases with a mortality of 60 per cent., but since 1905 there had been 44 cases and only two patients had died, a mortality of 4·5 per cent. Of 739 cases which he had collected the death-rate had been 26 per cent.

The discussion was continued by Professor Dr. W. KORTE (Berlin), who gave an account of the results of the various methods of treating malignant disease of the colon, and he drew the conclusion that in cases of acute obstruction colotomy was the best treatment, with later removal of the growth, and even in chronic forms the two-step operation was the safer, unless the conditions were very favourable. Moreover, the different anatomical conditions of the different parts of the colon required differences in the treatment. The ultimate results of removal of malignant growths of the large intestine were favourable. Of palliative operations entero-anastomosis and cæcostomy might be usefully employed.—Dr. A. L. SORESI (New York) described a method of bowel anastomosis which he had invented, and which saved valuable time in the operations on these new growths. It consisted essentially in using a core of rubber tubing with catgut loops to which were connected the stitches of a single layer of anastomotic mattress sutures. The operation could be completed in four minutes.—Mr. PATERSON laid stress on the need for thorough exploration of the whole abdomen in all cases where there was diminution in the hydrochloric acid of the stomach; in this way malignant disease of the bowel might be discovered in a very early stage. He urged that the surgeon should never refuse to operate because of the existence of enlarged glands. He was much in favour of a preliminary cæcostomy.—Sir FREDERIC EVE (London) presented the complete statistics of the operative treatment of malignant disease of the colon at the London Hospital during the years 1901 to 1911. There were 375 cases in all; and of these 61 per cent. were suffering from obstruction. Of 127 in which a colotomy was done the death-rate was 54 per cent. Immediate resection was done in 95 cases with a mortality of 48·4 per cent.; with secondary resection the mortality was 38·8 per cent. He was inclined to think that the three-stage operation was the safest. He had not found that the more extensive operations were necessarily more dangerous.—Mr. A. E. BARKER (London) expressed his entire agreement with the views enunciated by Professor Körte.—Professor KRYNSKI was in favour of immediate resection if the indications were favourable.—Mr. CHARTERS SYMONDS (London) thought primary resection undesirable. He agreed that it was often impossible to distinguish between inflamed and malignant glands. He was in favour of doing colotomy in the transverse colon in cases where the disease was left-sided.—Mr. SPENCER advocated strongly the claim of appendicostomy for the treatment of these cases; he urged that it was far superior to colostomy, for fæces or gas could not escape, while colostomy should be reserved for exceptional cases.

Dr. ANGELO CHIASSERINI (Rome) read a paper on

Some Experimental Researches on the Production of Inflammation of the Pituitary Body.

The gland was approached from the outer side, the temporal lobe being raised carefully, and it was found easy to reach the gland. The general symptoms produced by infection resembled those resulting from disease of the gland, though some days elapsed before the symptoms appeared.

Dr. F. H. ALBEE (New York) read a paper on

Bone Transplantation.

He had employed it for many conditions, but especially for caries of the spine. By means of a thin splinter of bone taken from the patient's tibia the spines of some of the vertebræ were fixed together. The results were very good.

Dr. JOHN B. MURPHY (Chicago) read a paper on

The Clinical Results of Arthroplasty and Osteoplasty.

He showed numerous illustrations exhibiting the beneficial results he had obtained in cases of ankylosis of joints by the interposition of a layer of fat and fascia between the bony surfaces.—Mr. R. MILNE (London) spoke in favour of the excellent results he had seen in Dr. Murphy's clinic.

Dr. MAUCLAIRE (Paris) read a paper on

Bony and Articular Grafts.

He described cases in which he had employed bone grafts to repair loss of bone in various sites, with good results.

Dr. H. ECKSTEIN (Berlin) showed many illustrations of cases in which he had employed hard paraffin in repairing deformities. Some of the results were very striking.

Professor R. MINERVINI (Naples) read a paper on

The Practical Value of Free Grafting of Skin from the Fœtus and New-born.

The skin is taken from a new-born child, even 12 hours after death; the fat and connective tissue are removed, and the skin is cut into square pieces and applied to the surface to be grafted.

FRIDAY, AUGUST 8TH.

Professor VICTOR ROCHET (Lyons) opened a discussion on

The Diagnosis and Treatment of Early Renal and Vesical Tuberculosis.

He stated that there was no evidence that a miliary tuberculosis of the kidney existed, but it was quite possible. He was not in favour of operating on those early cases in which the only evidence of tuberculosis was the presence of bacilli in the urine; it was well to wait for pyuria, and the evidence of a lessened excretory power in the kidney, or for some important complication, such as severe hæmorrhage or pyrexia. In stages earlier than this general treatment was indicated. When both kidneys were affected operation was not indicated unless there was evidence that in one kidney there was some severe lesion threatening life. With regard to bladder tuberculosis, if this was consecutive to tuberculosis of the kidney, then the kidney must be treated, and when that was cured the bladder would generally be cured also. In the same way when the vesical tuberculosis was secondary to disease of the genital organs in the male these must be treated. In the very rare cases when the bladder was primarily affected general treatment was indicated when the disease was early and only when the bladder disease was severe was local treatment to be employed.

Dr. HANS WILDBOLZ (Berne) continued the discussion. He pointed out the great difficulty of recognising very early cases of renal tuberculosis; in fact, when it could be recognised with certainty the disease was already somewhat advanced. He held that the best treatment in all cases of unilateral tuberculosis of a kidney was the removal of the affected organ as soon as possible, and that general treatment was only justifiable in those cases in which the patient refused operation.

Dr. A. FULLERTON (Belfast) believed that renal tuberculosis was in most cases unilateral for a long time, and that in almost all cases of vesical tuberculosis the kidney was the site of the primary disease.

Professor H. KUMMEL (Hamburg) held that tuberculosis of the urinary system nearly always started in the kidney, and that it was limited to one side for a time; that removal during such a stage was the best treatment.

Dr. G. VAN HOUTUM (The Hague) had a high opinion of the value of the local treatment of tuberculosis of the bladder. He employed one or two cubic centimetres of a solution of nitrate of silver of a strength of ½ to 2 per cent.

Mr. O. A. [illegible] ught that it was very diff [illegible] lisease, and he was inclir [illegible] too great a hurry to remove the kidney.

Dr. DAVID NEWMAN (Glasgow) held that tuberculosis always began in one kidney and descended. He had the greatest opinion of the value of a cystoscopic examination, but experience was needed to interpret what was seen. When the ureteric orifice in the bladder was normal it might be taken that the corresponding kidney was normal also. Some valuable illustrations were shown to illustrate his contribution to the debate.

Professor ROVSING (Copenhagen) expressed the opinion that it was extremely rare for the surgeon to see tuberculosis in an early stage; it was only if the disease was detected when a man was examined for life-insurance that the disease was seen really early. He had a very small opinion of the value of tuberculin.

Professor E. HURRY FENWICK (London) believed that it was possible to recognise early tuberculosis of the kidney, sometimes as early as the third week. He had a high opinion of tuberculin, hardly as a true curative agent, but rather as a tonic. Early removal of the kidney was the best treatment, and it had a mortality of only 8 per cent.

Dr. A. L. SORESI (New York) read a paper on

What is the Value of Direct Transfusion of Blood? Its Indications and Technique, with Reports of over 600 Cases.

He laid stress on the importance of choosing suitable cases; it should be employed only in cases in which it was required to give time for the blood-making organs to do their work. Most of his cases had been done for hæmorrhage; it was advisable to give saline solution first, while the preparations were being made for the blood transfusion. When it was done for poisoning by illuminating gas it was advisable to remove some of the impure blood before introducing the fresh blood. The main point about the technique was that intima must be brought into contact with intima, and he showed an ingenious form of apparatus for accomplishing this. Further, the vessels must be kept moist with saline solution during the whole of the time the blood was passing. The best vein for the donor was the ulnar, and the best vein of the recipient was the external jugular.

Dr. CHARLES BORSZEKY (Budapest) read a a paper on

The Prevention of Hæmorrhage in Operations on the Liver.

The method he employed consisted in the use of a clamp applied to the edge of the lesser omentum so as to control the hepatic artery and the portal vein. The method had been employed in 11 cases, and nine of these had recovered. It appeared to be advisable that the blood stream should not be arrested for more than an hour.

Mr. ARTHUR H. EVANS (London) showed a patient from whom he had removed an

Extensive Carcinoma of the Larynx.

The patient was a woman 39 years old, and the growth had involved so much of the œsophagus as to make it necessary to remove it as far down as the upper border of the sternum. A rubber tube had been fixed into the cut end of the pharynx, and it was also fastened into a gastrostomy opening; the patient was able to take the food by the mouth, and it passed by the tube into the stomach. The operation was performed four years ago and she was still in good health.

Dr. ERNEST LAPLACE (Philadelphia) read a paper on

Arterio-thrombosis and Thrombo-phlebitis of the Mesentery.

He held that all these cases were infective in origin, even though there was no marked pyrexia, and he had performed experiments which supported this opinion. He had found the greatest value in the use of a solution of citric acid (1 in 500) for proctoclysis by Murphy's method, at the rate of 40 drops a minute. It produced a marvellous reduction in the septic manifestations.

Sir FREDERIC EVE (London) had seen a case of mesenteric thrombosis in which there had been no gangrene of bowel.

Mr. E. W. HEY GROVES (Bristol) inquired as to the theory on which the citric acid had been used, and he wished to know whether it had caused any hæmorrhage.

Dr. LAPLACE, in reply, said that he used the citric acid as an agent for restraining septic processes; he had had no hæmorrhage.

Dr. CHARLES GOODMAN (New York) read a paper on

Arterio-venous Anastomosis for Impending Gangrene; a Report of 15 Consecutive Cases with Arterio-venous Anastomosis of the Femoral Vessels.

The opportune time for intervention was in the pregangrenous stage, though it might be done a little later. The utmost care was necessary to prevent the formation of thrombi. The end-to-end operation appeared to be the simplest. The results so far obtained warranted him in believing that gangrene could be prevented if the operation was not left too late.

Dr. PUJOL Y BRULL read a paper on Gangrene of the *Bowel as a Result of Obliteration* of the Mesenteric Vessels.

Dr. KEPPICH (Budapest) exhibited and explained the mode of use of Huttl's Stitching Instrument, which inserts a double row of staples to close the bowel or stomach in resection. The instrument worked extremely well.

SECTION VIII.—OBSTETRICS AND GYNÆCOLOGY.

THURSDAY, AUGUST 7TH.

President, Sir FRANCIS H. CHAMPNEYS (London).

The PRESIDENT briefly welcomed the members and forthwith called on Professor DÖDERLEIN (Munich) and Professor ESSEN-MÖLLER (Lund) to introduce their reports on

The Treatment of Hæmorrhage from the Placental Site in the Later Months of Pregnancy.

The natural tendency for this subject to fall into two divisions (placenta prævia and accidental hæmorrhage) was accentuated by the decision of the reporters to choose one division each. This arrangement gave, it must be admitted, rather a disjointed effect to the discussion. It was perfectly clear, however, that the section was unanimous in dividing cases of hæmorrhage into two groups for purposes of treatment—viz., (1) those for whom the facilities of a hospital were available, and (2) those where these were impossible or refused. Almost every speaker urged this distinction, and many insisted that all cases of hæmorrhage were as clearly cases for treatment in hospitals or nursing homes as any acute surgical condition.

Professor DÖDERLEIN, in his discussion of placenta prævia, conferred a boon by his grouping in statistics of a very large number of cases. These included series by the following methods: (1) Artificial dilatation by bags; (2) tamponade of the vagina; (3) Braxton Hicks; (4) intra-amnial metreuryse; (5) abdominal Cæsarean section; and (6) vaginal section. He favoured operative measures (particularly vaginal Cæsarean section) where facilities were possible, but was still prepared to keep an open mind on the whole question.

Professor ESSEN-MÖLLER, who limited himself to the pathology and treatment of accidental hæmorrhage, referred to the recent discovery that, frequently at least, the muscle was the site of the hæmorrhage. He considered that a small group of cases was directly attributable to trauma, but that by far the larger group had an association with albuminuria such as to suggest some general intoxication. He drew comparisons between eclampsia and accidental hæmorrhage, particularly in regard to the albuminuria and hæmorrhage. For treatment he advocated Cæsarean section (abdominal or vaginal) for serious cases with closed cervix where the condition made rapid delivery necessary; hysterectomy was only to be done when contraction remained obviously deficient after removal of the child and the placenta. He doubted the efficacy of the Rotunda method, and in moderate cases would try the effect of rupture of the membranes.

So far as the discussion related to placenta prævia there appeared more or less a consensus of opinion that the Braxton Hicks method for most cases and Cæsarean section for severe cases with closed cervix gave the best prospects.—Professor J. M. MUNRO KERR (Glasgow) urged that the latter should not be postponed till late.—Professor MURDOCH CAMERON (Glasgow) was by no means enthusiastic over Cæsarean section, but Professor RECASENS (Madrid) was sufficiently convinced of its merit to have done it where the child was dead.—Professor R. JARDINE (Glasgow) recommended pituitary extract for all cases of hæmorrhage, but Professor DE LEE (Chicago) pointed out that there was a danger of rupture of the uterus following this drug.—Professor E. P. DAVIS (Philadelphia) regarded the condition as being essentially similar to ectopic gestation and therefore treated it on surgical lines. He had had 14 Cæsarean sections with recovery of all the mothers and of all the viable children.—Professor PAUL BAR (Paris) and several others called attention to the possibility of an aggravation of the shock following section cases.

Discussing accidental hæmorrhage, Sir JOHN BYERS (Belfast) remarked that, when concealed, it gave rise to an appearance suggesting "something behind the bleeding." He thought that rupture of the membranes was bad if it delayed labour, and recommended the Rotunda method of packing, pituitary extract, and isotonic salines.—Professor JARDINE described two cases of concealed hæmorrhage where the condition was too serious for section, and yet the patients recovered under pituitary extract, salines and morphia; such cases pointed a moral.—Dr. E. HASTINGS TWEEDY (Dublin) described thorough plugging of the vagina and its fornices as being invariably successful in arresting hæmorrhage by pressing on the big vessels; the patients, however, might still be in danger.

Professor DÖDERLEIN and Professor ESSEN-MÖLLER briefly replied.

Afternoon Session.

At the afternoon session several interesting papers were communicated. Professor FRITZ FRANK (Cöln) spoke strongly in favour of subcutaneous symphysiotomy, and was supported by Professor MUNRO KERR.

Professor DAVIS advocated surgical intervention (nephrotomy) in cases of pyelitis of pregnancy resisting ordinary medicinal treatment. He was against the induction of labour, which might still further light up the infection.

Professor FABRE (Lyons) described his method of external hysterography. By means of a very simple apparatus he had studied the uterine contractions in pregnancy, labour, and post-partum. Different types of contraction had been noted, and it had been found possible to foretell the type of contraction in labour. The action of drugs had also been studied with ease.

A short paper by Professor RECASENS, on Homologous Organotherapy in Certain Gynæcological Complaints—i.e., the injections of preparations of human ovaries obtained mainly from operations for fibroids, and one by Professor P. NUBIOLA, on Electrographic Observations during Pregnancy, followed and brought the session to a close.

SECTIONS VIII., X., AND XVIII.—OBSTETRICS AND GYNÆCOLOGY, DISEASES OF CHILDREN, AND HYGIENE.

FRIDAY, AUGUST 8TH.

President, Dr. ARTHUR NEWSHOLME (London).

A very important debate took place on

The Causes of Death among Infants during the First Four Weeks after Birth.

Three reporters introduced the discussion, Dr. A. K. CHALMERS (Glasgow), Dr. H. KOPLIK (New York), and Professor V. WALLICH (Paris).

Dr. CHALMERS's contribution was largely statistical. He pointed out, firstly, that the deaths under one month formed almost one-third of the total deaths during the first year; secondly, that those occurring in the first week made up one-half of those occurring in the first month. It appeared that two-thirds of these deaths within a month could be ascribed to causes suggesting cell deterioration in the antenatal stage. He grouped such under the general term of "immaturity." They represented children who in a very literal sense might be said "to be born to die." Data appeared to suggest a strain of inefficient preparation for motherhood, or of inability on the part of one or other parent to beget healthy children, which was independent of surroundings and knew no geographical boundaries. Further tabulation of the causes of death in the days and weeks of the first month was urgently necessary for our further information. Statistics showed that the death-rate from prematurity and wasting diseases in the first three months of life was much less elastic than the rates for the third to the sixth month, and the sixth to the twelfth month. He was of the opinion that the gynæcologist must be looked to for some elucidation of the problems suggested. A sex variation, an age-period variation (under 20 and over 40), a relation to employment of the mothers and to social conditions in general, were clearly demonstrable. In conclusion, he was firmly convinced that nature and not nurture was at fault.

Dr. KOPLIK affirmed that the mortality under discussion was intimately connected with prenatal influences, and that the first month of extra-uterine existence was closely allied to the history of the fœtus in utero. Syphilis in statistics did not give a large quota of deaths, but this was probably due to difficulty of diagnosis. Obstetrical difficulties, the feeding of the infant, the legitimacy of the infant, and the social position of the parents were all discussed. He considered that 60 per cent. of this deplorable mortality was due to neglect, ignorance, and poverty; prematurity alone would not account for a death, but prematurity and exposure would. Prematernity hospitals and instruction were a necessity; expert artificial feeding was preferable to wet nursing; and the education of the physician in obstetrics was not yet complete.

Professor WALLICH produced interesting statistics showing the variation between legitimate and illegitimate cases, and between home-nursed infants and those put out to nurse. The mortality from obstetrical reasons was improving, but much remained to be done in correcting detrimental social conditions.

A long and interesting discussion followed. Professor VEIT and Dr. A. L. McILROY (Glasgow) emphasised the important of a syphilitic taint. The latter in a series of 100 unselected cases in an out-patient department had found 49 per cent. giving a positive Wassermann reaction.

Sir FRANCIS CHAMPNEYS (London) insisted that the physician must make it fashionable for mothers to nurse their children. Schools for prospective mothers would in the end prove a cheap investment for the State.

Dr. AMAND ROUTH (London) was anxious that registration of stillbirths should be made compulsory all over the country.

Sir JOHN BYERS (Belfast) had tried unsuccessfully to get the maternity benefit so arranged that one condition of its payment was that the patient should regularly report herself during pregnancy.

Mrs. SCHARLIEB (London) urged the responsibility of women doctors in persuading pregnant women to submit to more thorough investigation, mothers' clubs were of incalculable value, and doctors and nurses were much to blame [illegible] pathological [illegible] be admitted. [illegible] institution of wet nursing on a large scale; there was no equivalent substitute for mother's milk.

Professor J. M. MUNRO KERR (Glasgow) and Miss ALICE WINTER considered that pregancy should be made notifiable, so that efficient prematernity supervision could be given, and the reporters briefly replied.

In the afternoon session of the Section of Obstetrics Professor POZZI (Paris) described his operation (stomatoplasty) for opening up stenosed cervices associated with sterility, and was enthusiastically supported by Dr. H. R. SPENCER (London), who regretted that this operation had [illegible] wedge of uterine fundus was removed in one piece with the adnexa; the patient was thus left with the possibility of menstruation.

Dr. A. L. McILROY (Glasgow) discussed some factors influencing the mammary secretion, and was constrained to limit such to the ovary. She had failed clinically to confirm Schäfer's experimental work on the galactogogue action of the pituitary gland.

SECTION IX.—OPHTHALMOLOGY.

WEDNESDAY, AUGUST 6TH.

President, Sir ANDERSON CRITCHETT, Bart. (London).

The PRESIDENT, in his address of welcome to the large gathering of ophthalmologists from every part of the world that filled the great room assigned to the section, said that their feeling of pleasure at this notable gathering must be tinged with a deep regret that the man who had been chosen as the *doyen* of their art and as the president of this section was no longer with them. Sir Henry Swanzy had passed from amongst them, but his name was inscribed in their [illegible] attention would be directed in the doings of the section, the President said it was of interest to review the changes that had come over their work since the last similar meeting. New methods of diagnosis had been found—to wit, the [illegible] to diagnosis which came through sister sciences, and none was more valued than the X rays as aids to the location of foreign bodies in the eye and its adnexa; by means of this alone many eyes were now saved that were formerly lost. With the neurologist they had learned much of the conditions of disease of the pituitary body, and a whole new literature of cases illustrative of this organ in its relation to the eye and the body generally had grown up. Further, their work had brought them into relation with the dental surgeon, for it wa[illegible] was the influence [illegible] be relieved by the [illegible] their own partic[illegible] diagnosis and treatment. In the tension of the eye their judgment by tactile sense could now be supplemented by delicate manometers; that was a great gain. In the treatment of glaucoma they had new modes of operation which had greatly changed their view of the prognosis of the disease, and for [illegible] range, Priestley Smith, [illegible] The improvement in [illegible] facilitated the treatment of grave corneal conditions, of conical cornea, and ulcers. Some of the newer methods were still in a state of flux; for example, the valuation put on subconjunctival injections was varied in the extreme; by some they were lauded as perfection, and by yet others they were held to be utterly worthless; there was need for the balancing of these extremes. Radium also had come, but its value was as yet indeterminate. Their reflections on the experiences of the past must be that there was no finality in their work; they held the seed of the *future in their hands, but as yet they still, like Moses, viewed* the promised land from afar.

Professor DE LAPERSONNE (Paris) read a paper on

Dermoid Cysts of the Fronto-orbital Region.

He detailed the conditions of some cases of complicated dermoids which appeared to be encapsulated in a thin, bony case in the upper part of the orbit and which had two points of projection beneath the skin, the one below the brow, the other above *in the frontal region*. It appeared that the penetration of the cysts into the orbit was a secondary feature. The utility of the X rays in distinguishing these cases from frontal sinusitis was great.

Professor E. FUCHS (Vienna) and Professor GOLOVINE (Moscow) discussed the paper.

Professor W. UHTHOFF (Breslau) read a paper

On the Recovery of Intracranial Tuberculosis with Coincident Eye Affection.

The eye symptoms were particularly associated with tuberculous meningitis. Several cases were detailed. In conclusion, he said that only about 2 per cent. of the cases with meningitis recovered. Lumbar puncture held out the best prospect of relief.

Professor Dr. ZUR NEDDEN (Düsseldorf) read a paper on

Multiple Pneumococcal Infections of the Cornea.

Corneal ulcers due to the pneumococcus had been held to be of single origin in the same cornea; recently he had seen two cases of lacrymal disease in which numerous small infections of the epithelium that passed into serpiginous ulcers of the usual severity.

The paper was discussed by Professor SATTLER (Breslau).

Dr. A. ANTONELLI (Paris) described and showed photographs of a rare case of Naso-lacrymal Periostitis with Symptoms of Leontiasis Ossea in Inherited Syphilis.

THURSDAY, AUGUST 7TH.

Professor ERNEST FUCHS (Vienna) and Professor DE SCHWEINITZ (Philadelphia) opened a discussion on

The Pathogenesis of Chronic Uveitis, excluding Syphilis, Tuberculous, and Sympathetic Varieties.

Professor FUCHS dealt with the subject from the pathological findings. He said that in these cases there was a distinct gradation of effects. In the least precipitates only were noted; in others synechiæ of the iris appeared; in yet others the process was so severe as to cause ultimate shrinkage of the globe. The anatomical characters differed in these cases both in degree and kind, and the evidence showed that in the lesser severity the irritation was due to toxins, whilst in the graver there was a direct bacterial infection.

Professor DE SCHWEINITZ said that the evidence at their disposal suggested that there was no basis for the supposition of the existence of a rheumatic iritis, but that uveitis occurring in the subjects of various forms of polyarthritis was due to the same cause as produced the joint affections, and that was unknown. It was probable that gout did induce a chemical irritation of the uveal tract. There was evidence that most cases of uveitis were the direct result of bacterial infection or were set up by their toxins; particularly was this true of the gonococcus and staphylococcus. The former caused many of the so-called rheumatic cases. The latter was associated with other affections of the mouth, pharynx, nasal sinuses, uterus, and skin. In most cases he thought the uveitis was caused by the direct invasion of the organism modified by its transmission through the blood stream. Dealing with the idea of auto-intoxication, he said that there was no evidence that the body tissues produced poisons; the cause was intoxication from bacterial products. The study of the chemical constituents of the urine afforded a field for the elucidation of metabolic irregularities, and seemed likely to lead to the establishment of a definite group of diseases of the uveal tract called into existence by infections of bacterial origin arising in the intestinal tract.

Professor AXENFELD (Freiburg) said that it was exceedingly difficult to exclude tubercle as the cause of uveitis, post-mortem examinations were not conclusive unless microscopic investigations were thorough. He believed that this was a much more common cause of uveitis than was commonly supposed.

Professor A. ANGELUCCI (Naples) maintained that most cases of myopic choroiditis were due to chronic intestinal sepsis.

Dr. E. FRANKE (Hamburg) spoke, and Professor FUCHS in reply acknowledged that the difficulty of the exclusion of tubercle was extreme; the microscope would not exclude it; inoculation was alone sufficient. But they had a really definite line of distinction in the character of the changes produced by the various irritants.

Professor DE SCHWEINITZ reiterated his conclusion that the evidence was all in favour of bacterial effects and not in the production of poisons by the body itself.

Professor ANGELUCCI read a paper calling attention to the variation in the incidence of conjunctivitis according to season in Europe and Egypt. In Europe the cases were proportional to the rise of the temperature, and they had one maximum peak for the year; in Egypt it appeared there were spring and autumn peaks, and for this there was no adequate explanation.

Experiments on Animals.

Mr. J. B. LAWFORD (London) read a resolution as follows:—

> That this section records its conviction that experiments on living animals have proved of the utmost service to medicine. That accordingly, while strongly deprecating the infliction of unnecessary pain, it is of opinion, alike in the interests of man and of animals, that every facility should be given to competent persons for the performance of such experiments under adequate supervision.

The resolution was carried unanimously; there were about 230 members present.

Mr. ERNEST CLARKE (London) read a paper on

The Influence of Age on Accommodation.

Referring to Donders's work, which was their standard reference, he showed that in 3000 cases collected by himself the accommodation was rather better age for age than that found by Donders. Part of the difference he thought due to the fact that in these times refractive errors were better eliminated by the use of efficient cycloplegics. Low accommodative power was a sign of premature senility, and frequently associated with intestinal stasis.

Other Papers.

Mr. A. F. MACCALLAN (Cairo) read a paper on Ophthalmic Progress in Egypt (printed [illegible] p. 470), and showed what strides had been taken since [illegible]03, under the stimulus of the gift for the foundation of hospitals by Sir Ernest Cassel.

Mr. J. BURDON-COOPER ([illegible]gh) read a paper in which he described experiments directed to determine the physicochemical changes in the crystalline lens in senile cataract. He showed that there was [illegible]en [illegible]nstant presence of tyrosin in the cataractous substance, sometimes in the aqueous after extraction, and that this substance of the [illegible]ld be produced by hydrolysis of the healthy lens [illegible]tance. He concluded that the cataractous change was [illegible] a hydrolysis.

Professor SALZER (München) read a paper on the Processes of Regeneration of the Cornea after Wounds. The first healing process was due to the proliferation of the surface epithelium, then followed activity in the keratoblasts for the reproduction of the proper substance, and lastly the elastic layer of Descemet was replaced.

Professor WICHERKIEWICZ (Cracow) described a Modification of Pannas' Operation for the Relief of Ptosis of the Upper Lid, and showed photographs of cases operated upon.

Professor RICHARD GREEF (Berlin) detailed new methods of preparing and mounting eye specimens so as to preserve the natural colours.

Dr. JOHN M. WEST (Baltimore) described his method of treating by operation Dacryocystitis by the intranasal resection of the bone adjacent to the lacrymal sac and removal of that part of the sac exposed. He said that the method gave an absolute cure, with full restoration of the drainage of the eye.—The paper was discussed by Dr. POLYAK (Budapest), Professor SCHIMANOWSKI (Kief), Dr. J. E WEEKS (New York), and Colonel ELLIOT, I.M.S.

Professor W. STOCK (Jena) read a paper on the Blood-count in Tuberculous Affections of the Posterior Region of the Eye.

Dr. MAGITOT (Paris) described a method of restoring transparency to the cornea after lime burns or ulceration had produced dense and unsightly leucomata. He trephined the area down to Descemet's membrane and replaced it by clear corneal tissue removed from another subject or from the same eye of the patient. Transparency of the grafted tissue persisted and vision was improved.—Professor SALZER discussed the paper.

SECTION XIII.—DERMATOLOGY AND SYPHILIGRAPHY.

WEDNESDAY, AUGUST 6TH.

President, Sir MALCOLM MORRIS, K.C.V.O.

The PRESIDENT opened the proceedings by an Address. He began by offering a hearty welcome to the foreign dermatologists, and then proceeded to trace the changes that had taken place in the importance of this branch of medicine since the 1881 Congress. Then dermatology was a science of little account, and an inspection of the 1881 proceedings showed a lack of interest and importance in the programme. The only notice bestowed on bacteriology was contained in a paper on Some Desquamative Diseases of the Skin. A gallant attempt was made to show that psoriasis, papular eczema, and molluscum contagiosum were all of bacteriological origin, and due to the same organism. No one, however, appeared to realise the important place bacteriology would take in the diseases of the skin. Turning from the etiology to the diagnosis and treatment of skin diseases due to bacteria, many triumphs had to be recorded. The elaboration by Wassermann, Neisser, and Bruck of the serum reaction for syphilis had enabled a correct diagnosis to be arrived at in cases of great difficulty, while in tuberculosis there were available the tuberculin reactions. In the therapeutics of syphilis the labours of Ehrlich and Hata had given salvarsan, the most important contribution which synthetic chemistry had ever made to medical science. Turning from the bacteriological to the fungous diseases, a tale of progress was again to be recorded. Although Gruby had long ago recognised the ringworm fungi his work had been forgotten, and not until 1891 was the thread picked up again, and had chiefly been elaborated by Sabouraud in France and Colcott Fox and Adamson in this country. Another notable advance in dermatology was the recognition of the importance of the ductless glands, while X rays and radium were of enormous use in a great variety of cutaneous affections. The greatest emphasis should be laid on the importance of the discussion on the treatment and prevention of syphilis, held jointly with the Section of Forensic Medicine in the Albert Hall. No greater service could be done alike for medical science and mankind than to urge upon governments the imperative necessity of taking systematic and thorough and vigorous action to suppress one of the greatest scourges of the human race. Let the blow be struck and with no faltering arm; then in the years that remain each would be able to look back on the Seventeenth International Congress of Medicine with profound and lasting satisfaction.

THURSDAY, AUGUST 7TH.

The proceedings for the day opened with a display of cases, many bearing on the subject under discussion for the morning.

After this Dr. J. DARIER (Paris) began a discussion on

Epithelioma of the Skin, Benign and Malignant,

with a paper in which he considered very fully the different types and their relationship. He emphasised the epithelial origin of the nævus cells. In treatment he was guided by the form the malady took. Rodent ulcer could be cured by X rays, cauterisation, &c. Epithelioma, on the other hand, should be attacked by surgical methods, and no other. Electrolysis could be satisfactorily employed for the simple nævo-carcinomas.

Professor J. A. FORDYCE (New York), who spoke next, exhibited a series of beautiful lantern slides illustrating rare tumours of the skin and their pathological appearances.

Professor J. JADASSOHN (Berne) followed, and classified benign epithelial neoplasms of the skin into groups according to their etiology. He recognised an infectious type, including molluscum contagiosum and warts, a chemical, due to tar, &c., a mechanical (corns), and an actinic (X rays).

These three reporters were followed by a number of speakers who contributed shorter papers. Dr. W. DUBREUILH (Bordeaux) made a point of the parasitic nature of the cancer cell. He agreed with Dr. Darier as to the epithelial nature of nævus cells. In treatment X rays should be employed in massive doses where this agent was applicable.—Dr. G. CIARROCCHI (Rome) employed a glycerin-arsenic mixture in benign epithelioma. This mixture was difficult to prepare, but was superior to other arsenical pastes in that it did not cause undue pain or inflammation. Its action was more gradual and more thorough, and the application required no special skill. In their communication Dr. J. NICHOLAS and Dr. FAVRE (Lyons) described certain granules and filaments found in carcinomatous tissues where special fixing and staining methods had been employed.—Dr. G. NOBL (Vienna) had treated epithelioma successfully by mesothorium.—Mr. J. MCDONAGH (London) divided cutaneous epitheliomata into three classes—epidermic, appendicular, and mixed epidermic-appendicular. He recognised intermediate forms and the close relationship of the three groups.—The early recognition of carcinoma and the education of the lay public furnished Professor T. C. GILCHRIST (Baltimore) with a theme. Many of the inoperable carcinomas were the result of neglect of early cases. He quoted Dr. Bloodgood's dictum that it was worse to operate incompletely on an early cancer than to operate completely on one in an advanced condition. Not only the public but the family doctor should be impressed with the importance of recognising the early stages of malignant disease.—Dr. E. SAALFELD (Berlin) spoke of the utility of mesothorium, while Dr. K. ULLMANN (Vienna) discussed arsenical cancer. He inquired if any member had met with this condition following salvarsan.—Dr. UNNA (Hamburg) was pleased to know that his French colleagues supported his view as to the epithelial nature of nævus cells. He discussed the stimulating effect of pigment on the cutaneous cells.

Afternoon Session.

In the afternoon there was a further demonstration of cases —Professor PETERSEN (St. Petersburg) described his success in three cases of undoubted Blastomycosis with salvarsan. From one to four injections were required to effect a cure.—Psoriasis received minute attention in a paper by Professor PEYRI Y ROCAMORA. He emphasised its close relation to certain other dermatoses, and regarded it as a reaction of the individual to various different stimuli, and not as an independent disease. It was important to recognise the various types as each had its special therapeutic indications.—The interest of this paper was enhanced by Dr. ALLAN JAMIESON'S remarks: he believed in the toxic nature of psoriasis.—Dr. SAALFELD again contributed an interesting paper on the Histology of Multiple Skin Tumours, and Dr. J. G. TOMKINSON (Glasgow) recorded good results in Lupus Vulgaris by combining X rays and caustics.—The paper of Dr. MEIROWSKY demonstrated the asexual reproduction of the spirochæta pallida. He had discovered by staining and the "dark ground" method the appearance of terminal and lateral nodes, from which new organisms are produced.

There were other interesting papers on the agenda: Dr. R. CRANSTON LOW (Some Peculiar Chronic Ulcerative Skin Lesions), Dr. HEIDINGSFELD (Anonychia Congenitalis Totalis), Dr. FAVRE, Dr. NICHOLAS, and Dr. REGAUND (Contribution on the Sweat and Sebaceous Glands), and Lymphogranulomatosus Inguinalis Subacutis, by Dr. DURAND, Dr. FAVRE, and Dr. NICHOLAS.

FRIDAY, AUGUST 8TH.

In the morning session the section passed unanimously a resolution in favour of experiments on animals.

A discussion was then opened on

Alopecia Areata and Allied Conditions.

Dr. R. SABOURAUD (Paris) declared himself in favour of the view that alopecia was a non-microbic and non-contagious malady. The etiology was quite obscure, and he thought Jacquet's observations on the reflex origin from decayed teeth, &c., only explained some cases. The association of changes in the nails and the frequent symmetrical distribution pointed to a general rather than a local cause. He called attention to the tendency to relapse, to the association [illegible] fact that the disease was [illegible] it better to observe facts [illegible]

Professor C. PELLIZZARI (Florence) regarded alopecia as a symptom, not as a disease. He considered it of nervous origin and of various causation. He thought the same hypothesis explained the etiology of many allied conditions.

Dr. L. BULKLEY (New York) had for a long time urged that alopecia areata was not due to local infective causes, and was not contagious. He was convinced that various reflex irritations were capable of starting the disease. In his experience alopecia was equally common in men and women. As he had observed that the eyebrows and eyelashes, where treatment could not be applied, were the first to recover in extensive cases, he was inclined to lay most stress on internal methods, and he gave carbonate of iron in drachm or larger doses thrice daily. It was important to pay attention to the general condition.

In the absence of Dr. PETGES and Dr. MURATET (Bordeaux) their communication was read by Dr. DUBREUILH. They had examined a large number of cases by the Wassermann test, but believed that the rôle played by syphilis was negligible.

Dr. CIARROCCHI pointed out in a paper which he read that he had observed after furunculosis and folliculitis of the scalp a subsequent alopecia, which when the evidence of the preceding inflammatory condition had disappeared, left what appeared to be a true alopecia areata. It was this tpye that gave rise to the epidemics. If seen early these cases could be diagnosed by the small red central cicatrix, but later this disappeared, and then a false conclusion might be arrived at.

Dr. NOBL considered that hereditary or acquired syphilis was only one of many causal factors in alopecia. Otherwise it had no direct relationship.

Sir DYCE DUCKWORTH (London) did not believe in the bacterial origin of alopecia. He had not come across any contact cases, and he thought that where epidemics were described some other disease was really present. The depressed and shiny appearance of the patches, very like the "glossy skin" in cases of neuritis, was in favour of neurotrophic origin. He did not find the condition common in Graves's disease, and in this opinion he was supported by Mr. Berry. In the treatment he gave arsenic and fatty foods; locally, a rubefacient.

Professor ARTHUR WHITFIELD'S (London) remarks covered a large field and brought out many interesting points. He also thought alopecia rather a symptom than a disease. He had encountered the condition after severe pediculosis capitis and also after mastoid operations. It was very important in cases associated with severe headache to attend to the eyes. When errors of refraction were corrected the hair often grew again.

Dr. J. H. SEQUEIRA (London) had taken 50 cases and had made charts of both the scalp and teeth. In a control series he had encountered the same dental phenomena without bald patches, so that he could not quite confirm Jacquet's views. In another series of 50 cases three gave a positive Wassermann reaction. He believed there might be a small group of cases which were of contagious origin. This view of the contagious nature of some cases was also held by Professor JADASSOHN.

Afternoon Session.

Dr. BELLOT, Dr. DEGRAIS, and Dr. L. WICKHAM (Paris) recorded observations on the action of radium on certain warty conditions. Where these were of a superficial nature, as in the case of plane warts, radiations of little penetration were satisfactory, but if of a deeper character then more penetrating rays should be employed.

Radium had proved very useful in the painful warty conditions of the sole.

Mr. A. E. **HAYWARD PINCH** showed a series of most striking photographs illustrating the curative effect of radium. He employed a pure radium salt and in three strengths. One of the most difficult conditions to treat was the "port-wine" mark; the best results were obtained with weak applications. In the case of rodent ulcer one massive dose should be given, and this alone often effected a cure. Lichenification of the skin in neurotic subjects was also amenable to treatment. The pruritus and discomfort rapidly disappeared. Radium was of great value in cases of keloid, an excellent cosmetic result being obtained.

Dr. **DUBREUILH** had employed X rays with marked success in the painful warty conditions of the sole.

In an extremely careful paper Dr. **OPPENHEIM** and Dr. **WECHSLER** (Vienna) described the results of tuberculin inoculation (von Pirquet's reaction) in the skin of patients suffering from various skin diseases. The percentage of positive reactions remained about normal in local dermatoses; it was greatly increased in lupus vulgaris, while in florid secondary syphilis the number of positive reactions fell well below the normal. They thought that this change was the result of an altered sensibility of the skin in these various conditions to tuberculin.

Many other interesting communications were made. Dr. **GEORGE PERNET** (London) recorded a case of Mycosis d'Emblée treated unsuccessfully with X Rays and Salvarsan. —Dr. **BULKLEY** considered important indications could be obtained from the urine in skin cases.—Subcutaneous Calcinosis was described by Dr. **F. PARKES WEBER** (London), and Dr. **NICHOLAS** and Dr. **MONTOT** (Lyons) discussed a Congenital and Familial Chronic Bullous and Vegetating Dermatosis.

Before each meeting a large number of rare cases were exhibited.

SECTIONS XIII. AND XIX.—JOINT SESSION OF THE SECTION OF DERMATOLOGY AND SYPHILIGRAPHY WITH THE SECTION OF FORENSIC MEDICINE.

SATURDAY, AUGUST 9TH.

Professor **BLASCHKO** (Berlin) opened a discussion on

Syphilis: Its Dangers to the Community and the Question of State Control.

He referred to the German Society for the Prevention of Venereal Diseases, founded in 1902. This society was now known all over Germany, and was consulted by the Government. Many laws had been passed at its instigation, and he thought some such system would be of great use in England. Referring to the regulation of prostitutes, this in his opinion had never been of the slightest use in diminishing disease, for the excellent reason that it missed the most important class of case, the young clandestines. Indeed, any attempt to exercise control by police supervision was unsatisfactory. A board of health should be constituted for this purpose, while a system of registration applicable to both sexes ought to be in force. Facilities for treatment should be brought within the reach of all, and this should only be made compulsory for youthful or weak-minded individuals, in whose case isolation might be practised if necessary.

Professor **FINGER** (Vienna) urged the importance of education in sexual matters, especially for youths. It was also most necessary to instruct patients suffering from venereal diseases as to the nature of their condition and its dangers to others. Midwives were not sufficiently conversant with the aspects of venereal disease, and they also should receive instruction. He recommended improvement in the dwellings of the poor, especially with regard to bedroom accommodation. No difficulties ought to be put in the way of patients receiving treatment, which should be made as easy as possible, and for this reason hospital hours for consultation might be arranged at the most suitable times.

In the paper communicated for him Major **H. C. FRENCH**, R.A.M.C., who was absent through illness, dealt mainly with the subject of State Control. He thought venereal disease must in time become notifiable on account of the heavy cost to the State, apart from all other considerations. The Cantonment Act in India had effected a yearly saving of £55,515 when reckoned at 1*s.* per diem for hospital diet, quite apart from other considerations. The annual number of invalids from India to England with syphilis had been reduced from 611 in 1897 to 18 in 1910. It was a common error to suppose that a man suffering from venereal disease was as dangerous as woman. Indeed, the amount of disease conveyed by woman was probably a hundred times as much as that convey by a man. Although a syphilitic woman was a more re source of danger, any method of dealing with the questi could only be successful by the early isolation of men a women and the efficient inspection of both. In Malta enormous reduction in the incidence of syphilis had be effected by a system of confidential medical notification a more effective segregation of diseased persons. Both tl and the reduction in India had taken place before t introduction of salvarsan. The administrative system control existing in the army could easily be adopted improved to meet the special requirements of civil co munities in England. In summarising the means disposal, he advocated medical notification of diseas suppression of *souteneurs* and solicitation, protection orphans and destitute children, and police measures. The should be more available beds in hospitals, where systemat instruction of students ought to be carried out.

In their report Professor **GAUCHER** and Profess **GOUGEROT** (Paris) urged that it was as necessary to comb syphilis as tuberculosis or alcohol. Syphilis attacked tl community in many ways, and the innocent suffered fr quently. They called especial attention to the dangers fro forks, tumblers, &c., in restaurants, and recommended boilin of these articles as a precaution. The risk of disease fro domestic servants was possible, but this could be avoided b obtaining a health certificate, especially in the case of we nurses. In the case of the discovery of syphilis in a domest the medical attendant should maintain professional secrec but should warn the patient of the danger of harming other recommending entrance into hospital. The regulation prostitution in France and other countries could not b efficiently carried out. Most syphilologists were unfavou able to it, for the majority of "prostitutes" escaped regi tration, and it was only applicable to one sex. Where th prostitutes were free from all administrative and medic supervision—the system of "abolitionism"—the results wer much better. They recommended education of young me and young women, organised treatment of syphilitic prosti tutes, the suppression and prevention of prostitution by th recognition of paternity, the conferring on seduced virgin of the rights of married wives, and by pecuniary or pena punishment of the lover who abandons his mistress.

Dr. **L. E. LEREDDE** (Paris) drew attention to the fac that syphilis in its various manifestations was second as cause of death in Paris. This estimate included syphilis o the nervous system, viscera, and vascular system.

Dr. **PONTOPPIDAN** (Copenhagen) said all police supervision should be given up. Every patient with syphilis must notify the medical man, who would keep him under control and inform the authorities only for statistical purposes. Gratuitous treatment should be available for all. This had proved very expensive in Denmark. He urged that the doctor should not be turned into a policeman, but should maintain the ordinary relationship to his patient. Although their results were too small for statistics, he thought under the new *régime* they were much the same as before. There were, he pointed out, twice as many beds available for venereal diseases in Copenhagen as in London.

Dr. **CARLE** (Lyons) agreed that police supervision should go. When compulsion was given up he found a greater number of patients came to his policlinic. A third meeting of the International Commission in Brussels was required.

Dr. **DOUGLAS WHITE** (London) also disapproved of the registration system; it failed to account for the young "clandestine." He advocated the protection of minors. Any scheme should take into account gonorrhœa, which was three or four times as prevalent as syphilis.

Mr. **J. E. LANE** (London) thought syphilis a much milder disease now than formerly, due to the advance in general hygiene. All patients ought to be able to obtain salvarsan.

Dr. **HELEN WILSON** (Sheffield) did not believe in compulsion, nor was confidential notification, in her opinion, of much real value.

Dr. **DUBOIS HAVENITH** (Brussels) reminded the hearers that the words syphilis and venereal diseases frightened

Ministe [illegible]
to act, [illegible]
Dr. V [illegible]
Venere. [illegible]
held, b [illegible]
belonge [illegible]
would [illegible] brought to his notice that sometimes one woman would entertain ten or 15 men in a single night in the brothels of Chicago.

Mr. D. VINRACE (London) thought that medical men should not become policemen. Notification was a breach of trust.

Sir MALCOLM MORRIS, the President of Section XIII., then spoke. He said the question was an international one. In these days no nation lived to itself, and with the modern means of international communication those who traded in vice could transfer their operations from country to country. He hoped the appeal, in which he had taken a part, for a Royal Commission on Syphilis would not be fruitless. The public were ignorant of all the facts of the case, and of the grave consequences of the disease. The State forced notification of infectious disea [illegible] inspected workshops and factor [illegible] protect the nation from this [illegible] had to urge the governments to decree confidential notification where this was not already done, and see that no case of syphilis went without treatment.

The following resolution was then put and carried unanimously:—

> [illegible] upon the Governments of all the countries here represented (1) to institute a system of confidential notification of the disease to a sanitary authority, where such notification does not already obtain, and (2) to make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for.

SECTION XV.—RHINOLOGY AND LARYNGOLOGY.

THURSDAY, AUGUST 7TH.

President, Sir STCLAIR THOMSON (London).

The PRESIDENT, in opening, welcomed the delegates warmly in English, French, German, and Italian.

A discussion took place on

The Recent Endoscopic Methods as Applied to the Larynx, Trachea, Bronchi, Œsophagus and Stomach.

Professor G. KILLIAN (Berlin) referred to the rapid strides made by the suspension method of laryngoscopy, and lauded Yankauer's method of aspirating mucus from the pharynx. He referred to the cure, sometimes permanent, of asthma by an intrabronchial spray of adrenalin and cocaine. In the removal of foreign bodies by bronchoscopy, tracheotomy increased the mortality by initiating pneumonia, nevertheless it was sometimes necessary.

Professor CHEVALIER JACKSON (Pittsburg) had collected records on this subject from all parts of America. He emphasised the necessity for careful preparation, as for an operation. As regards the position of the patient, when endoscopy was being undertaken for a foreign body in the larynx the Trendelenburg position was imperative, lest by gravity the foreign body fell into the lower air-passages. He examined as low as the bronchi, even of young children, [illegible] instances of nails, [illegible] removed. He had [illegible] suspension laryngoscopy.

Dr. H. LEWISOHN (New York) described his new telescopic œsophagoscope. Two flaps anchored the proximal part to the post-cricoid region, and then the telescope was extended to the cardia.

Dr. W. FREUDENTHAL (New York) showed a useful epiglottis retractor.

Dr. J. LONDON (New York) exhibited a new œsophagoscope on the principle of the cystoscope, but with a tiny mirror reflecting a very large field.

Professor MOURET (Montpellier) advocated a position with the patient sitting on a chair facing its back, the trunk flexed on pelvis and the head slightly extended—the attitude of a cyclist ascending a steep hill.

Dr. G. WILLIAM HILL (London) envied Professor Jackson [illegible] out any anæsthesia. He showed a [illegible] (London) also took part in the discussion.

Professor KILLIAN and Professor CHEVALIER JACKSON replied.

Afternoon Session.

Dr. LEWISOHN, Dr. SKILLERN, Dr. HILL, and Dr. LONDON demonstrated the use of new forms of endoscopic apparatus.

Mr. T. JEFFERSON FAULDER (London) showed a unique case of rodent ulcer in which the larynx was clearly visible through the large cavity of the ulcer.

Dr. E. J. MOURE (Bordeaux) read a paper on What Becomes of Sinuses that have been Operated on? Whether for frontal or maxillary sinus, the speaker regarded external drainage (Ogston-I [illegible] essential, and comp [illegible]

Of the speakers wh [illegible] Dr. MARSCHIK (Vi [illegible] (Antwerp), and Dr [illegible] Moure; whereas M [illegible] (London) held more conservative views.—Dr. KUBO described his own operation.—Mr. TILLEY and Dr. JACQUES (Nancy) preferred to adapt each operation to the individual case.

Dr. GUISEZ read a paper on Radium, describing its usefulness in fibrous œsophageal strictures and resulting diverticula; and, as a palliative, in œsophageal carcinoma.

Dr. HILL showed his radium apparatus.

Dr. E. BOTELLA (Madrid) read a paper on 54 Cases of Foreign Body in the Air-passages and Œsophagus. In the former, a clear voice with a short brassy cough was diagnostic. The greatest danger was septic pneumonia.

Dr. KUBO showed some curious foreign bodies, among others a Japanese denture with black enamel teeth.

Dr. T. J. HARRIS (New York) read a paper on the Use of Radium for Papillomata of the Larynx. One patient, a woman over 50 years of age, had had these growths removed biennially for 26 years. Radium cured her.

Dr. FREUDENTHAL *endorsed this usefulness of radium.*

Dr. H. ZWILLINGER (Budapest) read a paper demonstrating the direct lymphatic communication between the frontal sinus and the meninges.

Dr. SKILLERN read a paper on the Untoward Sequelæ of 20 Frontal Sinus Operations, including ptosis, fistula, hemicranial anæsthesia, and diplopia.

Dr. R. F. RIDPATH (Philadelphia) had observed Dr. Skillern's operations. There had been no case of necrosis of the bridge.

Dr. A. GYERGYAI (Kolozsvar) read a paper showing apparatus and photographs on the direct examination of the post-nasal space.

Dr. R. HOFFMANN (Dresden) read a paper, with lantern slides, showing the erectile tissue and nerve distribution of the inferior turbinates.

Dr. FRÜHWALD (Vienna) read a paper on *Mucocele of the* Septum. He said operation was quite feasible under cocaine and adrenalin.

SECTION XVII.—STOMATOLOGY.

WEDNESDAY, AUGUST 6TH.

President, Mr. MORTON A. SMALE (London).

The opening meeting took place on Wednesday afternoon at the Royal Dental Hospital. The PRESIDENT addressed a *few words of welcome to the section*, and the foreign delegates briefly replied.

Mr. F. J. BENNETT (London) read a paper embodying the conclusions arrived at by himself and Mr. J. G. TURNER (London) as the result of their examination of some 500 teeth obtained from ancient Egyptian skulls. They found that these Egyptian teeth contained cavities which, on careful examination and comparison with carious cavities in modern European teeth, could be shown to be due to antemortem caries. In the series of teeth examined caries was present in 16 per cent., a figure which compares very favourably with the *condition* obtaining in present-day European teeth.

In the discussion which followed it was suggested by more than one speaker that the incidence of caries varied inversely as the amount of work done by the teeth. This was emphatically denied by Mr. TURNER in his reply. He felt convinced that the incidence of caries depended, not upon the work done in mastication, but upon the soft and sticky quality of the food, and upon that alone.

Dr. ZILZ (Hungary) showed an extensive series of lantern slides demonstrating the presence in carious dentine of the tubercle bacillus in a resting stage. Dr. Zilz had obtained an emulsion from carious dentine in which no true acid-fast tubercle bacilli had been found. This emulsion he had inoculated into the peritoneal cavity of a guinea-pig, and had been able to obtain subsequently from the peritoneal cavity a culture showing typical acid-fast tubercle bacilli.

Mr. KENNETH GOADBY (London) and Dr. MENDEL pointed out that the lantern slides shown were not convincing, and that it was essential that members should have an opportunity of examining the actual microscopical preparations. Mr. Goadby emphasised the far-reaching importance of the experiment upon the guinea-pig detailed in the paper. He had had no previous success in similar experiments himself, but proposed to repeat them later.

Mr. J. H. GIBBS (Edinburgh) described an extremely interesting case of Polyphyodontism in a child. Three definite sets of milk molars were present on the right side of the mandible. One complete set of deciduous teeth was fully erupted. Beneath the erupted deciduous molars on the right side, and separated from them by a thin plate of bone, were two deciduous molars, and distal to these a permanent molar. In front of the first deciduous molar was the canine geminated with the lateral. Below these, again, were two deciduous molars and a permanent molar, a horizontal plate of bone again intervening. The actual teeth were shown to the meeting. It had been unfortunately impossible to obtain a skiagram. Just below the erupted first deciduous molar was evidence of the formation of a premolar tooth. There were also evidences of a fifth set of teeth below the third set of deciduous molars.

In the interesting discussion evoked by this case it was suggested that a comparison should be sought in the sharks.

In answer to a question by Mr. A. S. UNDERWOOD as to the condition on the other side of the mandible, Mr. GIBBS said that no sign of any abnormality had been found on the left side. Owing to the subsequent death of the child from whooping-cough it was impossible to follow out the case further.

An able paper by Dr. HONCZ (Hungary) dealing with traumatic implantation of teeth was discussed with interest.

Mr. GOADBY described an investigation by himself and Mr. J. BARRETT (London) into the bacteriology of pulpitis. Freshly extracted teeth were used, in which no gangrene was present. The teeth were acutely painful at the time of extraction. In the carious dentine the usual organisms were found, with streptobacilli in larger numbers than usual. On examination the pulp, where covered by a thin layer of hard though discoloured dentine, showed no bacteria whatever. Out of 10 cases in which the pulp was exposed, 3 showed no bacteria. In the remaining 7 cases streptococcus brevis was found in company with various other organisms. No yeasts nor any organisms of the mesenteric group were found in any of the pulps examined, though these organisms are common in the overlying carious dentine.

Dr. MENDEL expressed the hope that Mr. Goadby would turn his attention to the B. tuberculosis as a possible organism to be found in these cases.

Mr. J. F. COLYER (London) said that tubercle bacilli had been demonstrated in non-exposed pulps.

Dr. LORGNIER (Calais) read an interesting paper upon the Use of X Rays as an Aid to Diagnosis in Stomatological and Orthodontic Cases, which evoked a good discussion.

THURSDAY, AUGUST 7TH.

At the morning meeting a discussion upon the subject of

Pyorrhœa Alveolaris

was opened by Dr. ZAMENSKY (Moscow) and Mr. E. B. DOWSETT (London).

Dr. ZAMENSKY emphasised the presence of a rarefactive osteitis or osteoporosis in all cases of pyorrhœa, no matter what the cause. Osteoporosis was a predisposing cause. The pyorrhœa was brought about by local conditions which favour sepsis, such as tartar, stagnation of food, and want of due care in cleansing the teeth. Dr. Zamensky then exhibited a number of slides showing the pathological features of the various types of rarefactive osteitis.

Mr. DOWSETT pointed out that the primary lesion was a marginal gingivitis, brought about by careless cleansing of the mouth and teeth. He said that there were two types of treatment which might be adopted, viz., radical and conservative. In his opinion conservative treatment was only admissible in slight cases where the pockets were quite shallow and no general symptoms were present. In severe cases, especially in the presence of general symptoms, radical treatment by extraction was essential to cure. He expressed little faith in vaccine treatment.

In the very profitable discussion which followed many members took part, and varied opinions were expressed. But on the whole the sense of the meeting seemed to favour the more radical treatment in all but the slightest cases Vaccines received very little encouragement, and the majority of speakers, with the notable exception of Dr. RHEIN (New York), heartily disapproved of treatment by fixation.

Afternoon Session.

At the afternoon meeting Mr. A. S. UNDERWOOD (London) and Mr. A. W. WELLINGS (Birmingham) communicated a paper embodying a preliminary note on the results of some researches into the development and composition of enamel, in which they were assisted by Dr. LOVATT EVANS (London)

Dr. LOVATT EVANS detailed an analysis of human and elephant enamel in which Frankland's method was used His results showed the presence of a small quantity of organic matter (about 1 per cent.). He was unable at present to state the nature of the organic matter, but hoped to do so on some future occasion.

Mr. UNDERWOOD described the effect of strong acid upon enamel. A thin section of human enamel had been subjected to the action of strong acetic acid for 26 hours, the specimen being examined under the microscope at frequent intervals during this period, and the acid renewed from time to time. At the end of 26 hours, the structure of the enamel was quite clearly seen under the microscope, showing that prolonged exposure to strong acid did not entirely destroy the structure, as would have been the case if it were entirely inorganic. Mr. Underwood pointed out that the stellate character of the cells in the region known as the stellate reticulum was not to be observed in sections not treated with alcohol or decalcifying agents, and suggested that this stellate appearance was entirely artificial.

Mr. WELLINGS explained his method of staining by intra-vitam subcutaneous injection of trypan blue in rodents. By this method the forming enamel was deeply stained, while the dentine, cementum, and bone were only faintly affected. He showed a series of slides illustrating the various points raised in the paper.

Dr. LORGNIER briefly described a case of fracture of the mandible in which a Kingsley's splint had been used, with excellent results.

Mr. F. COLEMAN (London) detailed certain salient points in the treatment of mandibular fracture. He advised a delay of two or three days before applying a splint in order to allow the inflammation to subside. He described a clamp splint which he had found of great service.

Mr. J. LEWIN PAYNE (London) described the cradle splint which he had used with excellent results in many cases.

Mr. W. H. DOLAMORE (London) described a very interesting case in which his opinion had been asked as to the age of a child found dead. A child, aged 5 years and 10 months had been missing from home and subsequently a body had been found From a purely medical standpoint there was no evidence to show whether the body was that of a child of 6 or of 12 years. By an examination of the teeth, of which skiagrams were taken, Mr. Dolamore was able to show conclusively that the age of the child could not have been far removed from 6 years.

Dr. TALBOT (Chicago) in an able paper described certain periods of extra stress occurring in intra-uterine life, in childhood and in old age.

FRIDAY, AUGUST 8TH.

At the morning session a discussion on

The Relation of Nasal Obstruction to Dental Disease.

was opened by Mr. J. G. TURNER (London) and Dr. JULES FERRIER (Paris).

Mr. TURNER said that those who believed that nasal obstruction had considerable influence upon irregularities of teeth would admit without question that there must of necessity be a close relationship also between nasal obstruction, dental caries, and periodontal disease. Dental irregularity [illegible] factors which had been suggested as possible causes of dental irregularity; he maintained that one factor stood out far beyond all others in frequency and importance—viz., mouth-breathing, resulting from nasal obstruction. In support of this contention he pointed out that there was a constant association of adenoids with jaw deformities; that orthodontic treatment failed if nasal obstruction were not relieved; and that after excision of adenoids in early life, a sudden resumption of growth was seen in that part of the maxilla still capable of growth. The theory also provided a satisfactory explanation of the clinical manifestations of dental irregularity.

Dr. **FERRIER** dwelt briefly upon the theory advanced by some writers that though the constant association of nasal obstruction with dental irregularity could not be denied, it was impossible to decide which was cause and which effect; or, indeed, whether there was not some more general cause upon which both these conditions depended. He did not support this theory, feeling convinced that jaw deformities occurred as a direct sequence of nasal obstruction. Dr. Ferrier described the various deformities of cranium, maxilla, and mandible which might arise as a result of mouth breathing.

The papers evoked a very valuable discussion, in which many members took part. The main criticism advanced by several speakers, including Dr. **TALBOT** (Chicago), Dr. **RHEIN** (New York), and Mr. P. S. **SPOKES** (London), was that in order to discover the true cause of these deformities of the jaws it was necessary to look far beyond such local causes as were grouped under the head of "nasal obstruction." The environment consequent upon modern civilisation and the absence of true natural selection were really the root of the evil.

In his reply Mr. **TURNER** expressed his agreement with this point, but felt that while modern environment was a thing impossible to deal with in a generation, the fact still remained that by taking radical measures to obtain full nasal respiration it was possible for orthodontists to cure individual cases of dental irregularity, which was at least an important step forward.

Afternoon Session.

At the afternoon session Dr. **CRUET** read a paper in which he discussed the various types of stomatitis, dealing chiefly with the ulcerative and mercurial varieties.—The discussion was carried on by Dr. **CHOMPRET**, Dr. **LEBEDINSKY**, Mr. **KENNETH GOADBY**, and others.

Mr. S. F. **STEADMAN** (London) detailed an investigation upon 143 cases of malignant disease to show the relationship of pyorrhœa alveolaris to this condition. An examination of the Registrar-General's reports showed that 63 per cent. of all cases of cancer occurred in the alimentary tract; omitting the sexual organs, the alimentary tract was affected in 86 per cent. The 143 cases under examination affected various parts of the alimentary tract, the air passages, and parts in the region of the mouth. No less than 118 of these patients suffered from advanced pyorrhœa, while none were wholly free from it. Among 415 persons over 35 years of age not suffering from malignant diseases, examined as controls, only 66 had advanced pyorrhœa, while 56 were entirely free. It had been shown that cancer of the sexual organs and other parts of the body very commonly followed chronic inflammati[illegible] a chronic [illegible] membrane [illegible] malignant disease. Moreover, the figures cited strongly supported this contention.

Most speakers supported these conclusions, though Mr. A. T. **PITTS** (London) *felt that further evidence was essential* before a definite conclusion could be arrived at.

Dr. **LEBEDINSKY** (Paris) read a paper upon the Relationship of the Wisdom Tooth to Stomatitis, which was discussed with animation.

Mr. **KENNETH GOADBY** described certain inoculation experiments carried out by himself upon rabbits, demonstrating the connexion between arthritis deformans and oral sepsis. The actual rabbits were shown, together with skiagrams of the joints involved.

Mr. A. **HOPEWELL-SMITH** (London) read a paper dealing with the microscopical anatomy of gingivitis, and showed slides illustrating the same.

SECTION XVIII.—HYGIENE AND PREVENTIVE MEDICINE.

THURSDAY, AUGUST 7TH.

President, Dr. **ARTHUR NEWSHOLME**.

The first meeting of this section was opened with a few introductory remarks by the **PRESIDENT**, who proposed a resolution in favour of scientific experiments on animals, provided they were carried out by competent persons and under adequate supervision. This was seconded by Sir **ARTHUR WHITELEGGE**, and carried unanimously.

The chair was then taken by Sir A. **WHITELEGGE**, H.M. Chief Medical Inspector of Factories.

A discussion on

The Effects of Dust in Producing Diseases of the Lungs

was introduced by Dr. **EDGAR L. COLLIS**, Medical Inspector of Factories, in a very able paper, evidently based on much study and research. He classified dusts according to their origin, as animal, vegetable, or mineral, and pointed out that the least injurious dusts belonged to the first two groups—in fact, there was no certain evidence that the animal dusts caused any definite form of pneumoconiosis. Workers affected by vegetable dust were those employed in the flax, jute, and *cotton industries, and they exhibited a distinct* train of symptoms, the chief of which were a peculiar shortness of breath, spasmodic dyspnœa closely resembling asthma, barrel-shaped chest, and scanty and tenacious sputum. No marked excess of phthisis was found amongst these workers. With regard to mineral dust, he had come to the conclusion that the inhalation of mineral dusts which *contained free crystalline silica was associated with an* excess of phthisis, which excess bore a direct relation to the amount of the material present. All his investigations showed that it was the presence of silica which was the injurious constituent of the dust. This was confirmed by the high death-rate among flint knappers, in whose work the dust was composed of free crystalline silica unmixed with other constituents, and by the fact that, though stonemasons everywhere prepared stone for building purposes in the same way, yet their phthisis mortality was very different in different parts of the country, being high when sandstones, which contain silica, were worked, and low when limestones, not containing silica, were worked. The deaths from phthisis occurring among 70,300 males in four industrial groups—viz., Sheffield grinders, Staffordshire potters, Cornish tinminers, and sandstone masons—amounted to 754, which, after making allowance for the normal annual phthisis death-rate in an ordinary male population left over 600 deaths annually due to tuberculous silicosis in those groups. In conclusion, he suggested the theory that the differences in type of respiratory diseases occurring amongst those exposed to different dusts depended rather on chemical composition than on the shape of the dust particles.

Professor F. **HEIM** (Paris) insisted that it was necessary to establish a classification of occupations producing dust diseases, which should be based on the varieties of noxious characters of the suspected dusts. He distinguished two classes—viz., (1) active dusts, either poisonous, irritating, or infectious, and (2) inert dusts, which might be soft or hard. He suggested that radiology might be *a help in diagnosing* the nature and degree of the disease.

Professor **CAROZZI** (Milan) pointed out that workers whose organs offered lessened resistance due to narrowness of the nasal passages, &c., were most susceptible to the action of dusts. Medical men in Sicily had noticed that workers in the sulphur mines, however seriously affected with pneumocosiosis and chronic lesions of the bronchi, hardly ever suffered from pulmonary tuberculosis.

Dr. R. **MURRAY** [illegible] out that one of the characteristics [illegible] th Africa was its dryness and abs[illegible] believed that it was owing to the same characteristic of dryness that cases due to dust were so little infective. He thought the sharpness of the silica particles had much to do with their mischievous influence. In his opinion, the root of the lung was the first part to be attacked in the large majority of cases; and he drew attention to the great importance of radiography in the diagnosis of the disease.

Dr. Angus G. Macdonald (Kingston, Jamaica) said that coalminers were not peculiarly liable to phthisis, though they suffered a good deal from pneumonia, which might, however, be due to other causes than inhalation of dust. In Jamaica pulmonary disease was very rare, and yet the streets were constantly enveloped in clouds of dust owing to the soft limestone with which the roads were metalled.

Dr. M. Price (Niagara Falls, U.S.A.) said that he had had the opportunity of examining workers in graphite, calcium carbide, and carborundum, who worked in clouds of dust, and stated that the mortality in Niagara Falls stood at a higher rate than that in any other part of the State.

Dr. S. Barwise (medical officer of health of Derbyshire) said that the phthisis mortality amongst workers in gritstone was much greater than among those working in limestone or coal mines.

Dr. Leslie Mackenzie also spoke, and the Chairman paid a high tribute to Dr. Collis's work, and said he only regretted that time had not permitted them to enter into the question of the prevention of dust, on which much work had been done.

The members present adjourned to the Pathological Museum, when Dr. Collis lucidly explained a large series of specimens and photographs, &c., illustrating the subject.

Afternoon Session.

The chair was occupied by Dr. A. K. Chalmers (medical officer of health of Glasgow).

Dr. K. H. Beall (Texas, U.S.A.) read a paper on Pellagra in America, in which he pointed out that there were now 50,000 cases of the disease in the United States, with a mortality of over 25 per cent. He laid stress upon the remarkable incidence of the disease among women in America, which, however, did not obtain when statistics were taken from both sexes when living under the same conditions—e.g., in public institutions. In his view this might be explained by some condition peculiar to the home, but still undefined. It was also remarkable that in America one-third of the cases were city cases, and that, contrary to expectation, the black races were almost immune. In Texas, at any rate, he had not found the disease to be causally connected with the simulium fly, as believed by Dr. Sambon.

Other papers read were one by Dr. Bernhard Vas (Budapest) on Researches into the Disinfecting Power of Some of the Commoner Disinfectants; one by Dr. Zippell (Dijon) on the Disinfection Station of the City of Dijon; and a paper on Lead-poisoning among Workers in Printing Types by Dr. Dezsö Hahn (Budapest).

SECTION XIX.—FORENSIC MEDICINE.

WEDNESDAY, AUGUST 6TH.

President, Professor Harvey Littlejohn (Edinburgh).

In welcoming the members of the section the President remarked that when the last International Medical Congress was held in London, the subjects of Public Health and Forensic Medicine were combined under the title "State Medicine." Public Health had now developed into a science by itself, while Forensic Medicine had also made great advances, and its importance, as a special branch of medical science, intimately associated with the public welfare and the administration of justice, had been generally recognised in all civilised countries.

The first paper was read by Dr. Max Schächter (Budapest), the subject being

The Royal Hungarian Medico-Legal Senate,

the Senate, consisting of the president, the vice-president, and 20 members, representing all branches of medical science. The questions submitted to the Senate by the law courts for arbitration are reported on by the various members of the Senate delegated for that purpose. After the points have been discussed the report is considered as expressing also the opinion of the Senate, if approved of by the majority. If the details supplied by the law courts are not sufficient for the Senate to come to a definite conclusion, if possible further particulars are furnished, and the persons directly concerned may be examined directly.

Conditions Simulating Drunkenness.

Dr. F. J. Smith (London) read an interesting communication on this subject. He pointed out that the problem of whether an unconscious person was merely drunk or was very seriously or dangerously ill occurred almost daily in the routine of hospital work. He gave a list of those agencies which might produce unconsciousness, including certain diseases, injuries and poisons, but stated that it was not his intention to dwell upon this aspect of drunkenness, but he wished to draw renewed attention to another aspect of the matter, which, from a recent experience in court, he was afraid was not so commonly recognised or appreciated as it ought to be—namely, that what he termed the actively conscious stage of inebriety, hilarity, wildness of speech, and absurdity of conduct, might equally well be associated with or mistaken for, or rather not to be recognised as, serious and even fatal brain trouble. He quoted a case in point, in which a surgeon had stated in court that a meningeal hæmorrhage was necessarily associated at its onset with a stage of unconsciousness. Such evidence could only be the product of ignorance and want of experience, though unhappily it had won an unjust verdict in the case in question. After stating the evidence of science on the subject, he showed how this fully explained what to coroners and police officials was of everyday experience. Alcohol, at any rate in its earlier stages, acted as a stimulant to mind and memory and all the higher cerebral processes. Consciousness was not localised, but was a function spread over a large area of the cerebral cortex, and though increased cerebral pressure was one of the most important factors known to be capable of abolishing it, such pressure did not, and could not, arise at the first onset of a meningeal hæmorrhage, though he admitted that violent shock could produce it and be associated with the hæmorrhage.

THURSDAY, AUGUST 7TH.

An interesting discussion took place in the morning session on

The Medico-Legal Aspects of Infant Mortality.

Professor Etienne Martin and Professor Georges Mouriquand (Lyons) were to have read a paper on Sudden Death in Infants, but were unable to be present. The discussion was therefore opened by Professor F. Strassmann (Berlin), who read a communication on the subject of the discussion. He remarked that there were two specific modes of death in young children which occupied the attention of the medical jurist—smothering by negligence (overlying) and wilful starvation. They could only be diagnosed in the absence of other causes. He considered such cases to be rare, and as a rule in suspected cases death was shown to be due to natural causes. In his opinion the rôle of the thymus gland was still doubtful. He could not deny the possibility of a fatal compression by an enlarged thymus, nor yet the existence of a "status thymicus," but in actual practice he thought they were both rare. As a rule, in cases where a large thymus was present, bronchitis or enteritis, or both these conditions together, were found. He gave the results of 240 necropsies which he had made on the bodies of children in the first two years of life who had died suddenly without obvious cause. In 17 cases bronchitis was found, in 43 bronchitis with commencing pneumonia, in 7 intestinal catarrh, in 5 catarrh of the stomach and intestines, in 1 bronchitis and gastric catarrh, in 78 bronchitis and intestinal catarrh, and in 48 bronchitis and catarrh of the stomach and intestines. In addition, there were numerous instances of broncho-pneumonia combined with catarrh of the stomach and intestines or both. In 16 of the cases rickets was a prominent condition. In only one instance was there marked enlargement of the thymus. Great wasting was not a common condition. By itself it did not warrant a diagnosis of insufficient nourishment; in the rare cases in which this could be determined, it was usually proved by the evidence of witnesses, and only confirmed by the anatomical appearances. He suggested that improper feeding of infants, after careful instruction had been given, should be a criminal act if death should occur, but in view of the divergent views on the methods of feeding children only very gross errors would come within the law.

Sir William J. Collins (London) said that legislation and administration had been beneficially active in regard to *infant mortality, but from the point of view of forensic* medicine it had been much neglected. The whole question of death certificates and coroners' law in England required radical revision. There was no certificate required for the stillborn, and it was open to doubt whether some of those dealt with were in fact stillborn. Moreover, the law did not require certificate of the fact of death as apart from the alleged cause. In some cases, those certified as dead had been found in the land of the living and many were buried without any death certificate.

Professor J. **GLAISTER** (Glasgow) said that in cases of death from asphyxia it was often most difficult to determine the actual cause of that condition. The discovery of actual disease will of course be decisive; but in instances of [illegible] here may be no indications [illegible] Some of the most difficult [illegible] stigate were those in which there was marked malnutrition. Sometimes syphilitic disease of the liver was found, and if ill-treatment was alleged the question became very complicated. Convulsions were caused by many conditions, but the post-mortem signs would be only those of asphyxia. He strongly urged that the laws of death-certification should be amended.

Professor D. D. **MACTAGGART** (Canada) also commented on the difficulty of determining the cause of death when signs of asphyxia were present.

Dr. C. **TEMPLEMAN** (Dundee) also maintained that many bodies of children said to have been stillborn had really been born alive and no inquiry was made as to the true cause of death.

The **PRESIDENT**, in discussing the question of enlargement of the thymus gland and the status lymphaticus, said that he had never been able to satisfy himself that the thymus compressed the trachea to such an extent as to cause death, but he considered that it might press on the heart or surrounding structures. He was of opinion that in some cases of unexpected sudden death in children the only explanation was the condition of status lymphaticus, especially when associated with chloroform anæsthesia or in certain forms of violence.

In the afternoon session Dr. **DAVID NICOLSON**, C.B. (London), contributed a note on

Criminal Lunacy.

He maintained that the heredity of crime on which so much had been founded was a mythical and dangerous doctrine advanced by so-called criminologists, who apparently looked upon criminals as poor hapless creatures foredoomed by nature from birth to eventuate as parasites living upon society by the perpetration of punishable acts.

Dr. O. F. N. **TREADWELL** (medical officer, H.M. Prison, Parkhurst) read a paper on

Conduct in Feeble-minded Criminals.

He confined his remarks mainly to some forms of disorder of conduct observed in them while under custody in institutions and when subjected to institutional discipline. He explained that the term "feeble-minded" or "weak-minded" was used in prison parlance to denote all kinds of mental disorder which appear to indicate lessened responsibility. It was sufficiently comprehensive to include several classes, in all of which there was to be observed mental defect, ranging from a slight degree of divergence from a standard called by the observer the normal, to conditions of mental alienation just short of certifiable insanity. There were some criminals whose record of crimes and of misconduct in prison could hardly be exceeded, but in whom no other evidence of mental defect could be observed, who were nevertheless alert and intelligent and without prominent stigmata of physical degeneration, and who could not be looked upon as other than merely vicious. A careful examination, however, into the intellectual capacity of these badly conducted prisoners usually revealed some co-existent defects on the intellectual side, indicative of a low level of intelligence and often accompanied by some of the characteristics of physical degeneration. It was the presence of several of these in the same individual that was important in determining the classification of feebleness of mind on the difficult borderline. These border-line cases often gave much trouble in the management of prisons and institutions in which they were incarcerated, in consequence of the disorder of conduct to which they were prone. Their physical *conformation was quite up to the average*, their conduct was bad, but the evidence of defect of intelligence was meagre, and it was impossible to be sure that such cases were not simply those of depravity. Each case could only be decided upon its merits in accordance with the experience and judgment of the observer. The grosser cases were much less common than they used to be, and improvement had occurred *pari passu* with the lessened rigour of prison discipline. Conduct of feeble-minded prisoners greatly improved under modified regulations and specially selected attendants. He urged the importance of the segregation of feeble-minded criminals of the badly-conducted class.

Dr. **ANGELO DE-DOMINICIS** (Milan) communicated two papers, one on the Diascopy of Blood Traces, and the other on Some Experiments in Revivication.

FRIDAY, AUGUST 8TH.

Professor L. **THOINOT** (Paris) opened in the morning session a discussion on

The Teaching of Forensic Medicine, including the Construction and Equipment of a Medico-Legal Institute.

He considered the subject under three headings: 1. To whom should forensic medicine be taught? 2. How should it be taught? 3. How should a medico-legal institute be constituted? He said that every student of medicine should receive elementary instruction in forensic medicine, for every practitioner should be capable of assisting the requirements of justice, such as an examination of a person who has been wounded, or the performance of a post-mortem examination for medico-legal purposes. But in addition to this elementary course there should be a senior course, made as perfect as possible, for those medical men who intend to make a special study of the subject. If the instruction cannot be suitably given at the smaller schools it should be carried out at all the University centres. Professor Thoinot proceeded to give a syllabus of the subjects which should form a basis of the lectures and on which students should be expected to show a competent knowledge in the subsequent examinations. The subjects he mentioned were similar to those selected for the examination on forensic medicine at the London and other universities in this country. In addition, he insisted that opportunities should be found for giving practical instruction in post-mortem and laboratory work. He maintained that the teaching of forensic medicine should be carried out in a medico-legal institute, which should possess a complete autonomy. Such an institute should consist of two parts: (1) A mortuary with the necessary laboratories attached, and (2) suitable arrangements for teaching. The [illegible] which is necessary [illegible] post-mortem room, [illegible] mical and bacteriological laboratories. He referred to the medico-legal institutes in Bucharest, Budapest, Breslau, and Zürich as good examples of supplying all that is necessary for instruction and investigation.

Professor H. **ZANGGER** (Zürich) continued the discussion, and dwelt more particularly on the development of medico-legal knowledge. He said that the task of an institute of legal medicine and education consisted in carrying out in theory and in practice the claims that the Legislature make on medicine. This constituted the quantitative and qualitative examination of facts whenever any circumstances likely to have legal consequences have been brought to bear on the human body. These "circumstances" might lead to investigation in the criminal or civil courts, or under "contract law," or in connexion with "insurance." It was necessary that students should be taught to follow up each individual case, and the responsibility which involves on the examiner in such cases "right up to the consequences of the verdict" should be duly explained to him. He maintained that the most important point was the "reconstruction" of the chief circumstances of the case from the time that the incident under investigation arose.

In the subsequent discussion, in which Sir W. J. **COLLINS**, Professor **GLAISTER**, Dr. F. J. **SMITH**, Professor **PUPPE** (Königsberg), Professor **SCHÄCHTER** (Budapest), and others took part, the principle of a medico-legal institute for instruction and investigation was strongly approved. The centralisation of the teaching and the appointment of a lecturer who had had special experience were also insisted on. From the remarks of some of the speakers it was evident that in some countries the opportunities given to the student for studying forensic medicine left much to be desired.

The following resolutions were adopted :—

That an obligatory instruction for medical students and law students, divided separately for both if necessary, followed by an examination as far as medical students are concerned, should be instituted.

That a special practical instruction be instituted in forensic medicine for those who desire to become a specialist in dealing with forensic medicine.

The instruction must be accompanied by the provision of material of the living and dead.

Dr. A. J. **Hall** (Sheffield) read in the afternoon session a paper on

Diachylon as an Abortifacient.

He desired to call the attention of the section to a practice which had been steadily growing and spreading in England —viz., the taking of diachylon for the purpose of procuring abortion. He outlined briefly the history of our knowledge of the effects of lead in poisonous doses upon the fœtus, and referred to the original observations of Constantine Paul in 1860. The practice appeared to have begun in the Midlands about the "nineties," and the probable source of the knowledge was the prevalence of plumbism amongst industrial female workers in lead in that district. The gradual extension of the practice, as evidenced from recorded cases, was outlined, from the cases at Leicester in 1893 to the outbreaks at Nottingham, Birmingham, and Derby about 1898, and that in and around Sheffield from 1901 to 1906. Up to that date the practice was limited, except for one or two isolated cases, to the Midlands, as was ascertained by an inquiry made by Ransom and the author at that time. This inquiry was made on behalf of the British Medical Association, who attempted at that date to get diachylon placed on the poison schedule. This attempt failed. A further inquiry made specially for the purpose of this paper showed that the practice had now spread widely to the most distant parts of the country. Cases had been observed in Leeds, Manchester, London, Bristol, Hull, Newcastle-on-Tyne, Glasgow, Aberdeen, and Cardiff. No cases had occurred in Ireland. The greatest severity of the evil was during the final years of the last and the early years of this century, when trade depression was very severe. During the last few years the cases were less numerous, even in the Midlands, but they still occurred in considerable numbers, and the fact that the practice had extended to many fresh centres of population made it probable that with a return of bad trade the practice would assume grave proportions again unless steps were taken to repress it. In no other countries, excepting a few cases in Germany, did this practice seem to have existed. It was largely adopted by women anxious not to increase the size of their families for economic reasons, and they were quite unaware of the terrible dangers to life and health involved. If diachylon were scheduled as a poison to-morrow, or its sale absolutely prohibited, it would be no loss to medicine, as it was therapeutically unnecessary, and there was no doubt the practice would be largely if not entirely stopped.

Amongst other communications was one by Professor F. **Strassmann** (Berlin) on New Observations on Injuries Produced by Motor Vehicles.

Section XX.—NAVAL AND MILITARY MEDICINE.

Wednesday, August 6th.

President, Surgeon-General Sir **Launcelot Gubbins**, K.C.B.

This section met in the Lecture Theatre of the Royal Army Medical College, Millbank. The **President** in his short introductory address alluded to the last International Congress that had met in London, when the antiseptic treatment of wounds was the chief subject for discussion, but no mention was made of asepsis. That meeting was distinguished by the presence of the great army surgeon, von Esmarch.

Colonel B. M. **Skinner**, A.M.S., Commandant of the College, read a paper contributed by Surgeon-General A. T. **Sloggett**, A.M.S., Director of Medical Services in India, on

The Transport of Wounded in Hill Warfare.

Various patterns of conveyance were described, it being mentioned that, strictly speaking, a *dhooly* is a conveyance in which the bed is suspended from the pole, and a *dandy* one in which the bed is supported by two poles, one fixed into either end. The present pattern is really a *dhooly*, but is officially called a *dandy*. The experience of various campaigns was referred to, dating back from the prolonged war in Afghanistan (1878–80), when many types of this native conveyance were in use, through the Chin-Lushai expedition (1889–90) and the Tirah campaign (1897–98), to the two more recent operations in Tibet (1903–04) and the Abor country (1911–12). For serious cases the regulation *dandy* carried by four men, with two in reserve, has several advantages—e.g., steadiness, protection from sun and rain, and the fact that it forms a very comfortable bed; *per contra*, it is heavy (92 lb. in weight), and from its length is unsuitable for hill paths with sharp turnings. The *kilta*, or basket chair, carried on the back of a hillman, as in Assam, is comfortable; and can be used over difficult country. Stretchers and hammocks have certain distinct disadvantages in a hilly region. Thoroughly seasoned bamboo is the strongest wood for its weight that can possibly be procured, and should invariably be used in the construction of *dhoolies* and extemporised stretchers. The Indian *kahar* is a man whose forebears have carried *dhoolies* for countless generations; he knows how to apply his strength to the best advantage, and adopts a peculiar gait which reduces shaking to a minimum. Summing up the whole requirements as to sick and wounded transport in hill warfare, it was stated that on the actual hillside lying down cases must be carried in stretchers; cases that can sit up in hammocks or sling carriers; slight cases to proceed on foot. For the mountain road, lying down cases require *dhoolies* or hammocks; sitting up cases can be conveyed in wooden *khajawahs*, with canvas sides and hood; and slight cases can ride on pack saddles. When wheeled transport is available, the ambulance tonga is suitable for all cases.

Major E. **Nienhaus**, of the Swiss Army, showed some excellent photographs on the screen of wheeled stretchers and divided stretchers, applicable to steep gradients, and explained their use under special circumstances and over snow.

Colonel P. **Hehir**, I.M.S., also spoke.

Thursday, August 7th.

Surgeon-General A. W. **May**, R.N., who occupied the chair, welcomed the delegates and visitors to the discussion of a purely naval question—viz.:

Hospital Ships and Transport of the Wounded,

which was introduced by Surgeon-Inspector I. **Nishi**, of the Imperial Japanese Navy. The subject was considered under the two heads of the requirements in peace and in war. Any vessel allotted for the purpose should be an entirely new ship, and adequate preparation should be made during peace time for the requirements of war; obviously there would be financial difficulties to be overcome.

Fleet-Surgeon D. J. P. **McNabb**, R.N., advised the use of a cargo boat of 6000 to 8000 tons, in the absence of any specially designed vessel; a ship of this size should accommodate 300 to 400 sick. In taking over such a vessel two points were to be borne in mind: (1) a cargo boat is designed to run full, and when used as a hospital ship would be less than half full—various strains might be set up, to be guarded against by judicious strengthening; and (2) lifts should be provided to move patients from deck to deck.

The second paper was by Dr. **Zoltan von Ajkay**, of the Austro-Hungarian Army, on

Water-Supplies in the Field.

It was pointed out that a satisfactory solution of this important problem had not yet been found; neither the addition of chemicals nor filtration could give satisfactory results in all circumstances. The most recent suggestions, such as ozonisation or the use of the ultra-violet rays, presented great practical difficulties when actually tried in the field. On the other hand, a portable heat steriliser, such as the Hartmann pattern, did provide a sterile water. Of course, there were difficulties, but the boiling could be done.

Colonel W. H. **Horrocks**, R.A.M.C., described a method at present under trial at the Royal Army Medical College. Alum is used to precipitate turbid matter and bleaching powder as a chemical purifier, filtration, or straining, being effected through a thick cloth. The results were very satisfactory.

The experience of the French military authorities in Algeria had been favourable in regard to chemical methods of purification, according to Médecin-Inspecteur Dr. VAILLARD, as also has been that of the Italian army, as testified by Inspector-General CAVALLERLEONE.

In the laboratories of the Royal Army Medical College was displayed an extremely interesting exhibition of appliances for water purification, including various forms of filters, sterilisation by heat and by chemical methods, and by the ultra-violet rays.

Dr. GEORG MAYER (Munich) spoke at the afternoon session on

Epidemics caused by Different Articles of Food.

The outbreaks might result from chemical poisons of either organic or inorganic origin, from bacteria and their toxins, or from trichinæ. A *résumé* of the various kinds of food by which poisonous effects might be produced was given. The remedial action proposed was twofold: (1) by means of inspection and regulation on the part of the police; and (2) by means of instruction of the producer and consumer. Among the regulations recommended to be enforced especial stress was laid on the need for extreme cleanliness in every detail connected with the preparation and sale of food articles. With regard to large undertakings, such as the military commissariat department, hospitals, boarding-houses, hotels, and prisons, these establishments should conclude contracts in accordance with the administrative regulations recommended.

In the discussion which followed Lieutenant-Colonel W. W. O. BEVERIDGE, R.A.M.C., referred to the results of experiments in cooking. The temperature reached in the interior of the articles rarely rose as high as would be expected. He also alluded to the danger of keeping food that had been cut up overnight and consumed in the morning after exposure to contamination, outbreaks of food poisoning in soldiers having occurred from this cause.

Dr. G. MAYER also contributed a paper on Formaldehyde Disinfection.

SECTION XXI.—TROPICAL MEDICINE AND HYGIENE.

THURSDAY, AUGUST 7TH.

President, Surgeon-General Sir DAVID BRUCE, C.B., F.R.S.

The PRESIDENT, in opening the proceedings, offered a cordial welcome to the representatives of the profession from the various countries. He remarked that at the last meeting of the Congress in London in 1881 there was no section dealing with tropical medicine, but since then that subject had attained very great prominence and importance, and its literature at the present time might be described as colossal. This was an age of specialists, but in tropical medicine it was found that even a small corner of a special subject was more than enough for the average man to master thoroughly. In looking back at the workers of the past generation it was surprising to find how near the truth their surmises were in respect of many diseases—yellow fever for instance. In glancing at the progress of this branch of medicine it was apparent that the tropics were the haunts of protozoa and insects, while in [illegible]
diseases were more common. [illegible]
of the paper the President [illegible]
mittee had been formed to consider the nomenclature of Malta fever, and that it would meet during the week. A resolution was then passed, similar to that laid before the other sections, in favour of experiments on animals by competent persons in the interests not only of man but also of animals.

Plague.

A discussion on this subject was opened by the reading of a paper by Dr. A. G. BAGSHAWE, the secretary, in the absence of the author, [illegible]
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(An abstract of this paper appeared in THE LANCET of August 2nd.)

Major W. GLEN LISTON, C.I.E., I.M.S., contributed two papers, the first dealing with the contrast of the epidemiological features of bubonic and pneumonic plague, and the second considering the immunity of Mus rattus to plague infection. In these papers a number of experiments performed by the Plague Commission in India were described and the results given. (An abstract of Major Liston's paper was given in THE LANCET of August 2nd.)

Dr. C. J. MARTIN, F.R.S., and Mr. A. W. BACOT (of the Lister Institute) furnished a very interesting demonstration, with the help of numerous lantern slides, giving the results of some observations which they had made upon the mechanism of transmission of plague by fleas. It was shown by the experiments that infection could occur during the act of blood-sucking by the flea, and in such instances it was found that the pro-ventriculus of the flea was blocked by masses of cultures of B. pestis. It was not denied that infection might occur in other ways, as, for example, by the fæces of the flea dropped upon the skin of the victim at the time of biting and rubbed into the bite by the hand.

Dr. WU LIEN TEH (Dr. Gnoh Lean Tuck of China) described his investigations into the relationship of tarbagan to plague, which will appear in a future issue of THE LANCET.

Dr. R. ROW (Bombay) read a paper on the use of an antiplague glycerinated vaccine, prepared in a special way, which he described, and containing no antiseptic. It was, in Dr. Row's opinion, better adapted for using in graduated doses, since there was no clump formation in it.

Dr. VAN LOGHEM (Amsterdam) gave the results of certain experiences of plague in Java and as to the use of two antiplague vaccines, one obtained from Bombay and the other of German manufacture.

Mr. J. CANTLIE (London) alluded to some anomalies of plague incidence in Bombay and Hong-Kong; in the former it was a winter disease and in the latter it occurred chiefly in summer.

Dr. AGRAMONTE (Habana) gave some interesting particulars of the recent outbreak of plague in Cuba.

Dr. G. DUNCAN WHYTE (China) spoke of his experience of plague in China.

After Major LISTON and Dr. MARTIN had replied, the PRESIDENT closed the discussion, making some reference to the occurrence of plague in South Africa in 1900, when he was there. He regarded the papers which had been read before the section as being of great value as well as of special interest to the members.

At the conclusion of the morning sitting Dr. WU LIEN TEH gave a microscopical demonstration of plague material in connexion with his investigations on the tarbagan.

Afternoon Session.

At the afternoon sitting Professor G. H. F. NUTTALL (Cambridge) presided, and Dr. VAN LOGHEM read a paper dealing with the difference between the cholera vibrio and the vibrio discovered at El Tor. The author dissented from the view held by many bacteriologists that the El Tor vibrio was a real cholera vibrio, *and tried to prove this by a* number of facts. He demonstrated certain differences [illegible] lp of a series of auto-

then read a paper in German, illustrated by many lantern slides, on Pathologisch-anatomische Beobachtungen bei einigen Tropenkrankheiten.

Dr. J. TCHUDNOWSKY (Paris) contributed a paper in French on Acclimatement dans les Pays Tropicaux, which was discussed by Dr. VAN LOGHEM.

Dr. H EVERS (Angaur) *read a contribution in German on* Therapie von Dysenterie mit Chinosol.

Dr. AGRAMONTE offered some observations on the So-called Yellow Fever Parasite discovered by Dr. H. Seidelin, and, referring to the part he had taken in the investigation of the etiology of the disease, declined to admit the specificity [illegible] in.

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A paper was down upon the programme by Captain R. A. Chambers, I.M.S., on Enteric Fever in Indians, with special reference to its occurrence in the Indian Army, but in his absence printed copies of the paper were distributed to the members of the section, and it was not read.

FRIDAY, AUGUST 8TH.

Before the items on the programme were begun, the PRESIDENT announced that on the previous day the committee appointed to consider the nomenclature of Malta fever had met, and after discussing a number of suggestions as to altering the name, and having considered the terms put forward, such at goats' milk fever, goats' fever, septicæmia Brucei, morbus Brucei, &c., had decided to recommend that henceforth the disease should be known as *undulant fever.* It was proposed, therefore, by the PRESIDENT, and seconded by Mr. CANTLIE, that the decision of the committee should be accepted, and this was carried unanimously.

Discussion on Beri-beri.

A very important discussion was then opened on beri-beri, and the section was fortunate in having present at the meeting some of the best known of those who have done admirable work in the investigation of the etiology of the disease.

The discussion was opened by a paper read (in German) by Professor C. EIJKMANN (Utrecht) on the Aetiologie und Prophylaxis der Beri-beri, illustrated by diagrams. In concluding his paper the author pointed out that from the standpoint of the new partial-hunger or deficiency theory, it had to be remembered that the need of the body for vitamine varied somewhat in the individual, sex, mode of life, occupation, race, place of residence, climate, and season of the year.

Professor B. NOCHT (Hamburg) read a paper on the same subject.

Dr. L. BRADDON (Federated Malay States), who has been a pioneer in this work, spoke on some of the results of the measures taken against beri-beri in British Malaya, showing conclusively by tables and diagrams that the stoppage of the use of white (overmilled) rice in hospitals, prisons, and asylums was followed almost at once by the disappearance of the malady. He proposed at the conclusion of his address a series of resolutions which before being considered by the section were referred by the President to a small committee consisting of Dr. J. C. Martin, Dr. Braddon, and Professor Nocht, to be amended and redrafted.

Dr. C. FUNK (Lister Institute, London) read a short paper concerning the neuritis-preventing substance "vitamine," contained in the subpericarpal layers of the rice grain. He regarded the vitamin as a complex substance, and one which was easily split up His researches on this matter, however, are not yet completed.

Dr. H. SCHAUMANN (Hamburg) also read a paper on the subject.

Dr. S. SHIBAYAMA (Tokio) sent a contribution on the present state of the study of beri-beri in Japan.

Among those who took part in the discussion were Professor FILLIPO RHO (Director-General of the Medical Department Italian Navy, Rome), who spoke in French; Dr. SHIMAZONO (Japan), who spoke in German; Dr. L. NATTAN-LARRIER (Paris), Dr. MALCOM WATSON (British Malaya), Dr. TSCHUDNOWSKY (Paris), Dr. L. G. FINK (Burma), Dr. D. E. ANDERSON (London), Dr. AGRAMONTE, Dr. L. SAMBON (London), Miss MAY YATES (secretary to the Bread Reform League), Mr. CANTLIE, Dr. DE FREITAS CRISSIUMA (Brazil), Dr. L. G. CHACIN-YTRIAGO (Venezuela), Dr. C. NOEL DAVIS (Municipal Medical Department, Shanghai), and Sir PATRICK MANSON (London).

The readers of the papers having replied, the resolutions on beri-beri as amended were then proposed by Dr. MARTIN and seconded by Professor NOCHT and carried by a large majority. They were as follows:—

1. In the opinion of this section beri-beri among natives, whose staple food is rice, is induced by the continued and too exclusive consumption of the grain in its highly milled form, by which treatment the cortical and subcortical layers are removed.
2. The section urges upon all authorities responsible for the health of native communities the encouragement, by every means in their power, of the restriction of the use of rice of this kind.
3. In view of the proved non-infectiousness of beri-beri, the section suggests to all port authorities the propriety of abolishing quarantine and the restrictive measures at present in operation.

Afternoon Session.

At the afternoon sitting, which was presided over by Colonel Sir WILLIAM LEISHMAN, F.R.S., the programme included two papers which, in the absence of their authors, were taken as read. The first, by Colonel P. HEHIR, I.M.S. (Assistant Director of Medical Services, Burma Division), described a condition associated with ulcerated and swollen gums among Indian troops, of which he had seen during the last six years over 2000 cases, and which he suggested might be due to defective dietary. The second paper was by Dr. STEWART (Michigan) on the Probable Identity of Pellagra and Sprue.

Professor CLEMENTINO FUAGA (Brazil) read a short paper on Le Foie dans le Paludisme Chronique, Diagnostic, Physique et Fonctionel.

Dr. D. E. ANDERSON (London) contributed some Notes on Verruga Peruana, a disease of obscure origin met with in some districts of Peru.—This paper was discussed by Professor E. A. MINCHIN (London) and Sir WILLIAM LEISHMAN.

Professor KATSURADA (Japan) read a paper (in German) on Schistosomiasis, and showed a number of specimens of this form of parasite.—A short discussion followed, in which Dr. SAMBON and Sir WILLIAM LEISHMAN took part.

SECTION XXII.—RADIOLOGY.

WEDNESDAY, AUGUST 6TH.

President, Sir JAMES MACKENZIE DAVIDSON (London).

After a short introductory address by the PRESIDENT, who briefly reviewed the great progress of radiology since the discovery by Professor Roentgen, a paper entitled

Les Rayons de Roentgen dans Traitement des Leucémies,

by Dr. BÉCLÈRE and Dr. HENRI BÉCLÈRE was read by the latter. After a detailed description of its pathology, various types, and complications, the authors claimed great amelioration in all cases practically without exception. In giving a history of cases treated, it was claimed that marked improvement could be noted in the blood by the end of the first or second month. The technique was on the usual lines now obtaining—massive doses, cross fire, and filtration, the tube to be at least medium hard. It was necessary to arrange the interval between the doses of adequate length to avoid toxæmia. The usual medicinal treatment should be concurrent.

Dr. J. T. CASE (Michigan) read a paper on

Roentgen Studies of Colon Peristalsis and Antiperistalsis, with Special Reference to the Function of the Ileo-cæcal Valve.

This was a most interesting paper and was illustrated with a series of excellent radiographs. Dr. Case sometimes spends as many as eight hours at a time studying patients in various stages of bismuth meals. Consequently he has been enabled to make observations of phenomena not usually seen by the average radiologist. He has been rewarded by seeing on nearly 40 occasions the remarkable mass movement of the colon that seems to be a normal procedure, but which, as it takes place only at long intervals and is all over in a second or two, is seldom seen. It is an action that seems to be stimulated by the ingestion of food into the stomach. The evacuation of the colon and rectum of infants immediately after feeding is a familiar instance. An interesting point was brought out regarding the ileo-cæcal valve. Cases that are frequently described as ileal kinks Dr. Case has shown to be no more than an overloading of the distal end of the ileum through incompetency of this valve. The point is not without its importance in view of some recent writings.

Dr. BELOT (Paris) and Mr. CECIL R. C. LYSTER (London) both read papers on the

Treatment of Exophthalmic Goitre by the X Rays.

Dr. Belot claimed that the X ray method was unquestionably the best and least dangerous form of treatment for the complex group of symptoms comprised in the term "maladie de Basedow." The ordinary medical treatment was not interfered with. The technique is briefly as follows:—The gland is marked out in pencil and divided into two lateral areas and a median area. To each area a dose of 4 to 5 *H* is administered through an aluminium filter 1–2 mm. in thickness, the surrounding areas being covered with lead A hard tube 7–9 Benoist is used. Several days' interval must be allowed or absorption symptoms intervene. It is necessary to remember that the skin of the neck is peculiarly sensitive to the rays. If this treatment cannot be regarded as specific it at least yields results superior to any other treatment and should be always tried. It should always be associated with medicinal and hygienic measures, and is specially valuable when allied to electrotherapeutic measures.

THURSDAY, AUGUST 7TH.

The morning was given up to a consideration of

Radiography as Applied to the Investigation of the Stomach and Intestines.

The session was unfortunate in the absence through ill-health of the authors of the two papers forming the basis of discussion. That of Dr. HOLZKNECHT (Vienna) was read in part by Dr. ALBAN KOHLER (Wiesbaden). Beginning with the stomach, the author pointed out that radiology appealed to the eye, and thus greatly enhanced the value of inspection in a region where percussion and auscultation had little to offer. The importance of radiology had not appeared in the discovery of new diseases, but rather in assigning the correct diagnosis to the individual case. The author's custom was to consider the patient's history *after* screening to determine the motility of the stomach: then only could the symptoms be seen in their true light, and it appeared that duodenal ulcer was the most frequent "stomach trouble." Stress was laid on Haudek's double-meal procedure and on the serious import of gastric antiperistalsis. The author proceeded to review the technique of examining the intestine, giving the results of observations of bismuth meals and the signs of various affections and abnormalities of the intestinal tract.

The paper of Dr. C. LESTER LEONARD (Philadelphia) was read in part by Dr. PANCOAST (Philadelphia). This was a very extensive report, even though the writer confined himself to a review of the most salient features gathered from the available literature and his own experience. After referring to the conditions peculiar to the more or less normal stomach, including the motor functions, time of emptying, and so on, the author dealt with the various pathological conditions that had been observed and further elucidated by the method of examination. It would be impossible adequately to deal with this treatise here; even though the author had condensed it as far as possible it remained a voluminous document, and must be read *in toto* if its value is to be appreciated.

In the subsequent discussion Dr. A. C. JORDAN (London) emphasised the necessity for an examination in the recumbent as well as in the upright position in all cases, and further, in view of the interdependence of the whole of the digestive organs, a complete examination must include the progress of the opaque meal right through the digestive tract.

Dr. A. F. HERTZ (London), Dr. G. A. PIRIE (Dundee), Dr. A. H. PIRIE (Montreal), and others took part in the discussion.

Dr. G. E. PFAHLER (Philadelphia) read a paper on

The Treatment of Recurrent and Metastatic Carcinoma of the Breast by Means of the Roentgen Rays.

His method consisted essentially in the application of massive doses by the "cross-fire" method up to the limit of the toleration of the skin. Treatment should be begun immediately after the operation, or, better, a heavy dose should be given at the time of the operation and before the wound was closed. He was not in favour of ante-operative treatment as had been suggested. For a filter he uses a thick layer of leather on the skin, and close to the tube a layer of aluminium from 1 to 4 mm. thick, according to the depth it is desired to influence. Concurrently with this he gives his patients thyroid extract, and believes that his results are favourably influenced thereby.

Dr. LEWIS GREGORY COLE (New York) read a paper on

The Diagnosis of Post-pyloric (Duodenal) Ulcer by Means of Serial Radiography.

He said: The importance of recognising the presence of post-pyloric (duodenal) ulcer is evidenced by the communications of Moynihan, Codman, William Mayo, and Mayo Robson. For this purpose two radiographic methods have been employed hitherto by roentgenologists—Hemmeter, Holzknecht, Schwartz, Ashbury, Haudek, Strauss, Kreuzfuchs, and Pfahler. One of these methods depends on symptom-complices, which, as the name suggests, are only groups of symptoms. The second is based on the contention that bismuth will adhere to the surface or lodge in the crater of an ulcer, a theory which has led to many erroneous diagnoses. The method described and employed by me, and adopted also by George, of Boston, depends on recognising permanent and constant deformities of the cap, by means of serial radiography in at least 36 radiographs. These findings are as constant as one's finger-prints in a ball of putty, and consist of indentations in the contour of the cap, or cicatricial contraction around the crater of an ulcer. The involvement may be so small as to cause only a dent in one side of the cap, or so extensive as to distort it beyond recognition. The puckering, pouching, and narrowing of the lumen, described by Moynihan and Codman, and Hemmeter's "bullet-hole" crater, are all demonstrable by this method. The old healed lesions observed by Codman are also visible radiographically, although sometimes difficult to differentiate from active ulcers. [illegible] -pyloric (duoden [illegible] always be made [illegible] s. Distinguishi [illegible] of more scientific interest than practical value, because in either case surgery is indicated if the lesion is sufficiently extensive and associated with severe symptoms. Adhesions from post-pyloric (duodenal) ulcer may involve other regions, giving symptoms referable to the colon, gall-bladder, or stomach. The diagnosis of post-pyloric ulcer by serial radiography is equally as accurate as the radiographic diagnosis of renal or ureteral calculus. The radiographs must be studied individually and collectively, and either matched over each other or reproduced cinematographically. Applying the principle involved in serial or cinematographic radiography to plain radiography, where only two or three, or even a dozen, radiographs are made, will unquestionably lead to erroneous diagnosis, and thereby cast discredit upon the method of examination.

Dr. A. H. PIRIE (Montreal) read a paper on

The Variations in the X Ray Appearance of Normal Stomachs.

He pointed out that there can be no one form that can be said to be normal, since its shape depends on what it contains and how it is carried. At the same time, a line drawn from the cardiac end to the pylorus was fairly constant in regard to its angle with a perpendicular through the spine. He showed tracings of a large number of presumably normal stomachs, all of which varied in detail, and at the end was demonstrated a cinematograph film showing the peristalsis at the pyloric end very beautifully, which had been prepared by Dr. ROSENTHAL (Munich).

Mr. C. THURSTAN HOLLAND (Liverpool) read a paper on his

Statistics of Examination for Stone in the Urinary System.

1707 cases were analysed and he gave detailed results and statistics of all his findings. As regarded kidneys and ureters only, 1603 cases, stones were found in 402, or 1 in 4. In only 12 cases were any errors, and of these 4 were cases of wrong interpretation of the plates. Eighty-five negative X ray results were explored by operation and in not one was a stone found as the cause of the symptoms. In 116 other cases of negative diagnosis, not operated upon, other causes were eventually found for the symptoms. The author considered that the occurrence of pure uric acid calculus as a surgical condition was extremely rare, which was fortunate considering that the X ray method is incapable of demonstrating their presence.

SECTION XXIII.—HISTORY OF MEDICINE.

THURSDAY, AUGUST 7TH.

President, Dr. NORMAN MOORE (London).

In his presidential address on

The History of Medicine in England

Dr. NORMAN MOORE said that the founder of the study of the history of medicine in England was Dr. John Freind, who was born in 1675, educated at Westminster and Christchurch, died in 1728, and has a monument in Westminster Abbey. He sat in Parliament for Launceston in 1722 as an active Tory. He was sent to the Tower in 1723 with Atterbury, Lord Orrery, and the Duke of Norfolk, on suspicion of being implicated in the Jacobite plot, but he was released, as there was no evidence against him. It was during this incarceration that he planned and began his "History of Physick from the time of Galen to the Beginning of the Sixteenth Century," and dedicated it to Dr. Mead in acknowledgment of the latter's friendship and of the kindness shown him by the Faculty when he was apprehended to be in danger. Freind, in the first volume of this work, explains the contributions to medicine of Galen's immediate successors—Oribasius, Retius, Alexander Trallianus, and Paulus Aegineta—and shows the Arabians' debt to them. The plague of Justinian's time, the medical merits of St. Luke and St. Basil, and Harvey's discovery of the circulation of the blood, all form interesting episodes in Freind's narrative and are treated with great learning and skill. The volume concludes with an account of Palladius and later Greek physicians. In the second volume the Arabian school is dealt with, and it contains an admirable summary of the additions made by that school to medical knowledge. A description of the school of Salernum is followed by an account of the English mediæval writers, Gilbertus Anglicus, John of Gaddesden, Mirfeld, and Arderne. The plague of 1348, the sweating sickness, the scurvy, lues venerea, gunshot wounds, lithotomy, and anatomy engage the author's attention. He ends the volume with an account of Linacre and of his influence on subsequent medicine and physicians. Systematic medical biography began with the "Bustorum Aliquot Reliquiae" of Dr. Baldwin Harvey, and was continued by John Aikin, by Dr. Munk in his "Roll of the College of Physicians," and by the numerous articles in the "Dictionary of National Biography." The College of Physicians, founded in 1518, initiated constant relations between contemporary physicians in England, and linked them with those of the past and the future in a continuous stream. Starting from the study of Hippocrates' observations of nature, the College soon went on to experimental research, the first great result being Gilbert's discovery of the magnetism of the earth; the second, Harvey's discovery of the circulation; then followed Glisson, the pathologist, and Sydenham, the clinical observer, who may justly be regarded as the founder of the noble school of public health which exists in England. Finally, Matthew Baillie, the morbid anatomist, Sir William Jenner, Wilks, and Gee were treated of in succession, and especial mention was made of John Hunter, who established surgery as a scientific study in England, raising it from a mere discussion of method to the status of a true part of medicine, a true predecessor of Lister. Dr. Moore concluded by pointing to the many directions in which the history of medicine might be pursued, the variety of learning that might be brought to bear on it, and the relation it bore not only to the practice of medicine and surgery and to pathology, but to all allied subjects and the study of history at large.

(To be continued.)

THE MUSEUM.

The Museum of the Seventeenth International Congress of Medicine, housed in two laboratories on the top floor of the Royal College of Science, illustrated much of the recent work in medicine and the allied sciences that had accrued since the last congress in Budapest in 1909.

The main idea of the organising committee was to provide practical demonstration of the subject-matter discussed at the various sectional meetings. In addition, loan museums dealing with medical matters were on view, together with a most instructive series of exhibits dealing with museum technique from beginning to end.

A first glance at these two laboratories, with all their available space filled, hinted at the enormous energy and perseverance required to crystallise the committee's idea; a fuller examination evoked feelings of admiration for the determined manner in which success had been attained. Everywhere evidence of the guiding hand of that experienced and versatile organiser, Mr. H. W. Armit, was to be found. To him we owe gratitude, not only for the vast preliminaries entailed in collection and arrangement, but also for his translation of the 200 page catalogue into French and German, and also for his frequent presence during the days of the exhibit as guide and friend to the many visitors present. The committee was lucky indeed in having him as secretary.

Without entering into detail here the general ideas gleaned from a first view were the following. Firstly, the technical skill of the exhibitors, and here our memory chiefly recalls preparations from abroad which often typified the race that produced them; secondly, the protean aspects of medical science and the dogged search for truth along so many paths; then the everlasting pursuit of the direct and contributory causes of disease and the signal triumphs in mitigation and prevention gained by such of this investigation that bore success; and finally, the idea of teaching that permeates the modern museum.

Museum Technique.

It was quite fitting that our attention should be drawn in the first instance to the apparatus of museum technique and the several methods of preserving the original colour in specimens to be mounted and their indexing. Thus we were shown within a museum the numerous processes required in the formation of a museum. All the methods of colour preservation seemed to be successful, but there was no indication of the cost which is always a consideration with at any rate the smaller London hospitals. A comparison from this point of view would have been of much value.

Coronal and transverse sections through the entire thorax, as shown by Professor Hauser, indicating the lesions occurring in continuous viscera in that one plane without disturbance of parts, are a great advance on the usual methods of displaying a single viscus. These sections were particularly instructive in cases of pleural effusion and extensive cavitation of the lung. But here in England we doubt whether popular sentiment would allow many specimens of this kind being secured.

Professor Spalteholz showed a large series of bones, hearts, and other viscera, which had been rendered transparent by passing through benzoline and mounting in oils—a most novel method of bringing out certain features such as the arrangement of cancellous tissue of bone and the process of ossification in fœtal skulls, the centres having been previously acted on by a selective stain. Professor Wabby's preparations of the vascular system obtained by metallic or celluloid injection and subsequent solution of the surrounding tissues were very prominent. A combination of injection and Spalteholz method gave a vivid picture of the vascular systems in small fishes and rats.

Hygiene and Preventive Medicine.

Underthis heading came an important exhibition, arranged by Dr. E. Collis, to show the effects of dust—mineral, metallic, and animal—in producing pulmonary diseases. Here we found many of the processes illustrated, specimens of the raw material used, and samples of dust from the worker's benches or rooms, and numerous macroscopic and microscopic preparations of tissues obtained from man and animals after long-continued inhalation of foreign particles. In addition to these, statistical figures indicating the prevalence of phthisis and other facts were at hand.

It was interesting to know the "asthma" of those engaged in stripping cotton-carding machines, the comparative freedom of coal-miners from phthisis, and the great value of radiograms in estimating the amount and distribution of the fibrosis.

Surely these workers in dusty trades—and the list is a very long one, including, as it does, stone dressers, flint knappers, ganister and other miners, potters, granite cutters, plaster-of-Paris workers, and many others—deserve our sympathy and whatever protection we can devise. Much has been done to reduce the prevalence of pneumoconiosis by efficient dust removal, adequate ventilation, and the conversion of former dry methods of grinding and drilling into wet ones. But all the devices ever thought out will fail unless they meet with the intelligent coöperation and not the carelessness or indifference of the workers themselves.

Progress in the prevention of beri-beri was shown by a series of charts. One depicted its gradual abolition in the prisons of the Malay Peninsula on the substitution of whole rice for white, and another showed a fall in the death-rate from 421 per 1000 before to 5 per 1000 after the abolition of white rice amongst the Christmas Island coolies. These conclusions were corroborated by photographs of pigeons showing their suffering from experimental polyneuritis and their cure by appropriate dieting.

Cancer.

The work of cancer researchers was illustrated from many aspects. Induced and abnormal mitoses were shown by models, photographs, and actual preparations. Experimental cancers in mice and spontaneous cancers in various animals

—e.g., the horse and cow—which indeed were indistinguishable from the human variety, and numbers of statistical tables, formed a contribution from the Imperial Cancer Research.

Cancers of plants were there, too, forming an exhibit by Dr. Erwin Smith. He showed that crown gall—an abnormal proliferation of plant tissues—which was responsible for the destruction of acres of vegetable produce, was infective in nature and intimately connected with an organism he calls the B. tumefaciens. Closely allied to the foregoing is the work of the John Howard McFadden Laboratory, which tends to show that certain cutaneous inflammations and proliferations occurring in pitch and briquette workers are caused by the presence of certain bodies called auxetics and kinetics. Having discovered that these exciting bodies do not occur, or occur only in very small amounts, in certain coal and pitches, their future experiments should prove interesting.

Radium therapy in leukoplakia, superficial carcinomata and sarcomata was well treated of by Dr. Abbe (New York) and Dr. L. Wickham and Dr. Degrais (Paris). Their plaster casts, photographs, and diagrams were very convincing, and there is no doubt that radium *in suitable doses* leads to remarkable cures in cases where the disease can be approached and where it is not too far advanced. Dr. Abbe by his experiments on wheat and narcissus bulbs clearly showed that radium in unsuitable doses can be as harmful as it is beneficial in the correct dose. He showed that seeds could be devitalised or stimulated, as proved by behaviour on planting after exposure to varying doses of radium.

In this section, as elsewhere, we found the usual fine examples of cancer from all parts. But these the usual museum specimens, we do not intend to discuss, thinking it better to confine our remarks to the more original and lesser known work.

(*To be continued.*)

THE EXHIBITION.

The Exhibition held in the Imperial Institute was an unmistakable success and attracted a very large number of visitors. The discussions at the various stalls were quite animated in regard to the merits of the surgical appliances, electrical apparatus, biological outfits, ultra microscopes, drugs, vaccines, and so forth, which were displayed in great profusion. There was, indeed, much to see of real professional interest, and it was easy to note that the occasion was appreciated as one which afforded the medical man an excellent opportunity of inspecting recent developments in various important branches of medicine. Surgical appliances and scientific apparatus were perhaps greater in evidence than other classes of exhibits, although each section was interestingly represented. The electrical exhibits proved a source of considerable attraction, the display of X ray apparatus, high frequency machines, diathermic apparatus, cauteries, transformers, and switchboards being very complete. Biological apparatus, including ultra microscopes, formed also an interesting and important section of the exhibition, while demonstrations were given at intervals illustrating the value in medical research and education of the epidiascope, an apparatus for the direct projection in natural colours of microscopical slides, lantern slides, spectra, pathological specimens, and so forth. The display of drugs was relatively speaking a small one, but none the less interesting serving in most cases to illustrate the attention being given to the preparation of elegant forms of administration. Metal-colloids, organo therapeutic preparations, vaccines and sera, were a feature of this section. For the most part the special foods were familiar friends, including diabetic foods, soluble meat preparations, and milk derived compounds. There were several exhibits illustrating advances in sanitary apparatus, which included a number of new hospital appliances, as, for example, hospital sinks, lavatories, stoves, and a specially designed lavatory for the operating theatre. The stalls were broken up here and there by examples of recent medical literature, the leading publishers being well represented. It is obvious from this short introductory review of the exhibits that the whole collection offered a wide range of objects possessing interests in many important directions. Altogether there were about 180 exhibitors represented and not far short of 200 stalls.

In presenting a somewhat extended account of the more important exhibits it is convenient to adopt a classification of them into the following sections:—I., Electrical and Optical Apparatus; II., Surgical Instruments and Appliances and Hospital Accessories; III., Drugs and other Therapeutic Agents; IV., Special Foods; V., Sanitary Appliances; VI., Mineral Water and Beverages; VII., Literature.

I. *Electrical and Optical Apparatus.*

The electrical and X ray section occupied to the exclusion of other classes of exhibits the left hand annexe. The demonstration was an imposing one, and some very fine electrical apparatus was shown. Immediately facing the visitor as he entered this section, and at the end of the annexe, was a very fine collection of X ray transparencies by Messrs. Siemens Brothers and Co., Limited, of Caxton House, Westminster, S.W. Here was shown their latest type of universal single flash outfit for all X ray work, quick and instantaneous radiography as well as for single exposures. There were also shown a series of X ray bulbs fitted with tungsten anti-cathodes, a special screening apparatus (Levy Dorn), and a diathermy apparatus for the application of heat at any desired depth in the body. The exhibit included an electrocardiograph and a collection of tantalum dental instruments and apparatus adapted for treatment by radium activities. The Veifa Works, of Frankfort on Main, exhibited some admirably designed apparatus, amongst which were prominent Dessauer's one flash X ray apparatus, an X ray kinematograph by which, amongst other things, it is possible to determine which phase of the heart or respiration each individual picture corresponds to. There was also shown a universal diathermic apparatus adapted for local thermopenetration by means of electrodes, or general diathermic treatment in a four cell bath. Special X ray tubes were the feature of the stall of M. H. Pilon, 53, Rue de Paris, Asnières, Seine, France. In some instances these were fitted with a tungsten or a platinum target. Messrs. L. Drault and C. Raulot Lapointe, of 73, Rue Dutot, Paris, exhibited a number of ingeniously designed apparatus for use in radiology besides other electrical instruments, as for example, a cautery and a medical search light. The Cambridge Scientific Instrument Company's exhibit (Cambridge, England), contained a variety of interesting apparatus including that designed for electrocardiography, which has already been referred to in our columns, an apparatus for phonocardiography, and a number of useful apparatus in experimental physiology. Amongst the last may be mentioned a motor-driven kymograph, a laboratory chronograph, a tuning fork contact maker, a muscle trough (for overcoming trouble due to the drying of tissues used in experiments on muscle and nerve), and several types of microtomes. There were some interesting examples of electrical apparatus designed to assist the deaf to hear shown on the stall of Acousticons, Limited, of 353, Oxford street, W., besides telephones and microphones for special purposes.

A comprehensive and useful exhibit of electrical apparatus was presented by Messrs. Schall and Son, of 71 and 75, New Cavendish street, W., who joined for the purposes of demonstration with Messrs. Reiniger Gebbert, and Schall, of Berlin and Erlangen. Besides X ray installations and accessories displaying much skill and ingenuity, and effecting beautiful results even by a single flash of 1/100th of a second duration, there were shown also an excellent type of high frequency apparatus, an apparatus for thermopenetration, also one for galvanisation and faradisation, and another for the treatment of obesity. The exhibit included several types of cautery burners and electric lights for surgical exploration. Yet another admirable series of electrical apparatus was shown by the Sanitas Electrical Company, Limited, of 61, New Cavendish street, W. Chief amongst these was a complete "sanax" X ray outfit for rapid radiography, flash and instantaneous exposures or time exposures for radioscopic and therapeutic study. The outfit renders the application of X rays most convenient and effectual. There was besides the "multoscope," comprising a tube stand and blend box for diagnosis and treatment, an operating table for exposures and penetrations in a horizontal position, a frame for the examination of patients in a sitting or standing posture, and an appliance for compression and an orthodiagraph. A recent apparatus for diathermic treatment was shown, called the penetrotherm, which, it is stated, overcomes the drawback of previous designs due to defective and irregular action of the high-spark gap. The multostat provides an apparatus for the administration of various electric currents to the body. Ionic medication, 4 cell-bath treatments, galvanic faradisation, cautery, and light may be quoted as evidencing the range of application of this design. Another interesting apparatus shown by this firm was that used in the treatment of obesity, which forces a patient to obtain ample work of the muscle by exciting it electrically. Electricity in the service of dental surgery was illustrated in the electro-pneumatic apparatus for use in the diagnosis and treatment of diseases of the oral cavity at the exhibit of the Dental Manufacturing Company, Limited, of Alston House, Newman-street, Oxford-street, W. Messrs. Gaiffe, of Paris, were represented by the Medical Supply Association of 167–173, Gray's Inn-road, W.C., who exhibited their well-known X ray apparatus with uni-directional current known as the turning commutator. The output of the transformer known as the Rochefort-Gaiffe is described as exceedingly good, and its efficiency of the very highest. The exhibit included a diathermy apparatus and an electrotherapeutic apparatus for activating the muscles.

A very comprehensive exhibit of optical apparatus was that of Messrs. E. Leitz, of 18, Bloomsbury-square. The advantages of special construction in regard to their microscopes were abundantly demonstrated in a series of mounted objects. The new dark-ground condenser for the observation of living and unstained specimens should be mentioned. The objects are brightly illuminated against a dark ground. This method is valuable for the early diagnosis of syphilis, the observation of typhoid bacilli during the Widal reaction, of fresh unstained blood films for trypanosomiasis, and the investigation of the most minute micro-organisms. There were also shown an ultra condenser for the observation of ultra-microscopic particles, and special apparatus for projecting lantern slides, microscopical slides, and opaque objects. A demonstration of the large epidiascope was given from time to time. The advantages of a new apparatus (Havem-Sahli) for the examination of the blood were practically pointed out. Altogether this was one of the most interesting stalls in the exhibition. Mr. E. B. Meyrowitz, of 1A, Old Bond-street, exhibited the Morton-Marple electrically lit ophthalmoscope. The mirror is very thin with a slot cut right through the glass, a device which is said to obviate all annoying corneal reflections. There was an interesting series of optical apparatus at the stall of Messrs. C. Reichert, of Vienna, who were represented by their agents, Messrs. H. F. Angus and Co., 83, Wigmore-street, Cavendish-square, London, W. Amongst the novelties may be mentioned the fluorescence microscope for the study of objects in fluorescent light. By this means it is stated that it is possible to differentiate and determine chemical differences in unprepared objects, which by ordinary methods of illumination appear homogeneous and colourless. Most substances, but especially those of organic origin, so illuminated fluoresce; the "comparison ocular," is an instrument affording a ready means of viewing and comparing in one field objects under two distinct microscopes standing side by side. Amongst the interesting instruments exhibited by Messrs. George Spiller, Limited, of 32, Wigmore-street, London, W., were some ophthalmic lamp standards; the orthoscope, an automatic combined ophthalmoscope and retinoscope, which shows five discs width of evenly illuminated fundus; and the Maddox phorometer, a hand instrument designed for the ready and accurate diagnosis of muscular insufficiencies, besides some new models of spectacles and eyeglasses. The Tintometer Company, Limited, of Salisbury, exhibited the instrument invented by Lovibond for measuring and recording the colours of gases, liquids, and solids. This pretty device has found many valuable applications in commerce as well as in science. Messrs. Bruce, Green, and Co., of 14–18, Bloomsbury-street, London, W.C., had a number of interesting optical appliances on view—trial cases, frames, facial measuring sets, and the Wyche portable lamp for eye, nose, ear, or throat work may be mentioned. There were many attracted to the stall of the well-known Jena firm, Messrs. Carl Zeiss, Limited, of 13 and 14, Great Castle-street, London, W., who exhibited a number of microscopes of different patterns with apochromatic and achromatic objectives. Amongst novelties which may also be mentioned were a micro arc-lamp, a micro Nernst lamp, and a micro gas lamp. The exhibit included ophthalmoscopes, an exophthalmometer, and an inter-pupillary distance gauge.

II. *Surgical Instruments and Appliances and Hospital Accessories.*

The majority of the exhibits fall under this inclusive heading. It is not possible in the space at our disposal to present a complete review of the many articles of interest shown, but an attempt may be made to refer to those which had distinct claims to novelty and utility. Messrs. Allen and Hanburys, of 48, Wigmore-street, Cavendish-square, London, W., had many appliances of interest to the surgeon. Their portable operation table, known as the Waring table, may be mentioned. One form of it is made throughout of seamless steel tubing, all the joints are brazed, the top of the table being made of aluminium, the frame part aluminium enamelled. There was also a selection of instruments shown for the operative treatment of fractures, and amongst them a bone-holding forceps designed by Sir W. Arbuthnot Lane. Messrs. Mayer and Meltzer, of 71, Great Portland-street, London, W., had a very wide choice of surgical and hospital appliances on view. Prominence was given to the "Emandem" aseptic portable operation table, described as "firm as a rock and light as a feather," and an instrument tank for sterilising instruments by immersion in alcohol. Messrs. Short and Mason, of Walthamstow, London, N.E., showed on the stand of the Cambridge Scientific Company the "Tycos" sphygmomanometer, which offers a new and sound device for determining both the diastolic and systolic readings of arterial blood pressure. The Surgical Manufacturing Company, of 85, Mortimer-street, London, W., showed some new models of portable operation tables which they have recently brought to the notice of the profession, and a high pressure steriliser with vacuum attachment known as the Surgman steriliser. It is automatic in use, and is said to render dressings or instruments sterile and dry in 30 minutes at the cost of a few pence. Messrs. B. Braun, of Melsungen, Germany, and 41, Berners-street, London, W., exhibited many specimens of sterile catgut Kuhn, the merits of which were recently referred to in our analytical columns. Admirable precautions are taken to use healthy gut as well as to render it sterile.

Close by was the full stall of Messrs. Schaerer, of 41, Berners-street, London, W., who showed amongst other things a rib retractor of specially strong construction for thorax operations, and also rib shears which are described as strong working, giving a clean cut while being handled without great effort. Another interesting demonstration here was the suture apparatus (after Hahn) for stomach and intestinal resection. Amongst the claims put forward in favour of this apparatus are: (1) considerable shortening of the time of operations; (2) a perfectly secure and even suture; (3) perfect hæmostasis; and (4) perfect asepsis. Messrs. J. Nesbit-Evans and Co., of Floodgate-street, Birmingham, drew attention particularly to their latest improved bedstead for abdominal operations. The bed has an independently adjusted knee-rest portion, in addition to an independently adjusted head portion. A wheel is used to adjust either head-rest or knee-rest, while the bedstead can be used as an ordinary bed, since the spring surfaces can be brought to the level. Another excellent and simple design is the wheeling-out bedstead, which is in very extensive practical service. The appliance to which most attention appeared to be given at the stall of Messrs. John Ward, Limited, of 246 and 247, Tottenham Court-road, London, W., was the "Wardway" staircase chair, designed for the easy and ready conveyance of invalids, not merely from room to room, but up and down stairs, which renders it of the utmost value in private nursing. There were besides the Kingsway adjustable couch, providing for the comfort of surgical and medical cases, and a most comfortable and artistically constructed chair known as the Charterhouse reclining chair. We have already referred to the interesting exhibit of microscopes by Messrs. Carl Zeiss. On the same stall Messrs. Lautenschläger, of Berlin, exhibited a number of biological apparatus which offered advantages. Amongst these were some special incubators, sterilisers, and autoclaves showing improvements in design and efficiency of purpose. There were also in the same group urethroscopes, cystoscopes, œsophagoscopes, and other "scopes," aids in surgical exploration exhibited by Messrs. Wolf, of Berlin. Blood pressure measuring apparatus was chiefly in evidence in the exhibit of Messrs. E. Zimmermann, of Leipzig and Berlin, at the same stall. One instrument was shown by which three different tracings can be recorded simultaneously, showing blood pressure, pulsation and action of arteries or veins, or blood pressure, pulsation and action of the heart or carotids. This group was completed by the microtomes of Messrs. R. Jung, Heidelberg.

The Medical Supply Association, 167-173, Gray's Inn-road, London, W.C., made a feature of their improved sterilisers (Macdonald) for dressings. The efficiency of the apparatus is demonstrated by a test on anthrax spores in dressings, which former were killed in from 10 to 15 minutes. A very ingenious series of atomisers was shown by The De Vilbiss Manufacturing Company, Toledo, Ohio, U.S.A. These are adapted for producing a spray from any liquid, oily or aqueous. There were further shown examples of insufflators and nebulisers (oil). The very fine division into particles which these appliances produce is much in their favour in the treatment by spray of the nose and throat. At the stall of Messrs. Philip Harris and Co., of Edmund-street, Birmingham, prominence was given to "pexuloid," a substance suitable for the material of artificial supports. Its lightness is a convenient quality, a full-sized spinal support for an adult being said to weigh 14 oz. only. It is, further, non-inflammable, clean, and durable. The exhibit included a well-designed apparatus for the preparation and manipulation of carbon-dioxide snow, and some special pharmaceutical preparations. Some excellent examples of elastic hosiery, trusses, and abdominal supports formed the subject for inspection at the stall of Messrs. Walton and Curtis, of 190, Broadhurst-gardens, West Hampstead, London, N.W. A special article shown was the Curtis abdominal support, which is claimed to afford complete control of the lower abdomen and its contents. Enteroptosis, visceroptosis, and intestinal stasis are amongst the conditions quoted in which the use of this support is appreciated. There was a variety of apparatus on the stall of the Holborn Surgical Instrument Company, Limited, of Holborn-circus, London, E.C., and one that attracted considerable attention was the apparatus designed by Mr. C. M. Page, F.R.C.S., for the intravenous administration of hedonal for producing anæsthesia. A well-constructed saline infusion apparatus was shown here, and floating labels (glass tubes with a clearly printed label inside and hermetically sealed) — decidedly convenient and useful for marking the contents of various receptacles essential in the operating theatre. We have referred in our columns to the patent capsule of Messrs. Charles Hearson and Co., of 235, Regent-street, London, W., designed for the exact regulation of the temperature of incubators. Several examples of incubators were shown, including those controlled by gas, oil, or electricity. These incubators are indispensable in biological work. The new Anhydric electric incubators and ovens are adjusted for blood heat (37° C.), for embedding (45°-60° C.), for drying purposes (90°-110° C.), and for sterilising (150°-175° C.). Messrs. Claudius Ash, Sons, and Co., Limited, of 5 to 12, Broad-street, Golden-square, London, W., made school dental clinic outfits a special feature of their demonstration—a subject of obvious importance. There were besides some anæsthetic apparatus offering decided advantages. Lastly should be mentioned the "visible electric steriliser," a coil kept hot by the electric current, which raises water to the boiling-point when immersed in it. Messrs. Hawksley and Sons, of 357, Oxford-street, London, W., showed an improved sphygmomanometer fitted with a non-spillable tube, in which the annoying escape of mercury arising from loss of rubber caps, &c., is avoided. There were several types of sphygmomanometers shown, amongst which were good examples of a recording apparatus. Besides were several polygraphs and hæmoglobinometers and acoustic instruments to help the deaf. There was a good assortment of surgical dressings on the stall of Messrs. Arthur Berliner, of 15 and 17, Worship-street, London, E.C., amongst which may be mentioned absorbent and antiseptic cotton wools and one impregnated with capsicum and wintergreen.

street, London, W. In addition there were some specially constructed catheters and a shadowgraph bougie impervious to the X rays giving a sharp and deep black line on the screen or in a photograph. They also showed a new form of material for producing an oxygen effervescent bath, which, while giving a regular supply of oxygen, leads to no discolouration in the bath due, in the case of certain powders, to decomposition of a manganese compound. Messrs. Pocock Brothers, of Southwark Bridge-road, London, S.E., gave illustrations of a speciality of theirs—viz., padded rooms which have been approved by the Commissioners in Lunacy, and which are in use at the London County Council asylums. They also showed tubular beds constructed to relieve local pressure on the body. A further advantage is that a bedpan or other vessel can be used without disturbing the patient. Any damage, moreover, to the bed can be quickly remedied by the use of squares, the bed consisting of ten tubes. Amongst the comprehensive collection of surgical instruments exhibited by Messrs. John Weiss and Son, Limited, of 287, Oxford-street, London, W., was a very complete set of apparatus of service in ophthalmological practice and designed in many instances by Mr. Bishop Harman. Amongst the general instruments were anæsthetic apparatus, artery forceps for deep-seated vessels, and new forms of cystoscopes. The Scholl Manufacturing Company, Limited, of Giltspur-street, London, E.C., exhibited interesting examples of their "foot specialities" and orthopædic appliances comprising a tri-spring arch support for severe cases of flat-foot or heavy persons, a foot-rest v sponge rubber heel corset ankle suppo exhibition of clinical thermometers was given by Mr. G. H. Zeal, of 82, Turnmill-street, London, E.C., who adopts normal glass in their manufacture, which avoids contraction and so ensures accuracy of observation. The "repello" thermometer was also shown which is re-set simply by pressing a flattened bulb at the top. This is supplied with a magnifying lens, while a case is provided which keeps the thermometer aseptic. Medical and surgical plasters representing the latest developments in these indispensable accessories formed an interesting exhibit by Messrs. Leslies, Limited, of 18, Eldon-street, London, E.C. Amongst special things may be mentioned the diachylon base, a hospital strapping on brown holland, an adhesive plaster, a rubber adhesive on spools and in rolls, and various plasters containing well known medicaments—e g., belladonna, mercury, opium, capsicum, menthol, cantharides, and mustard.

Some practical oxygen apparatus for medical and surgical use was shown by Messrs. Richard Jacobson, of 70, Shoe-lane, London, E.C. *A recent development of the oxygen* narcosis apparatus combines it with a device which enables the operator to apply artificial respiration in the event of the patient collapsing under the anæsthetic or during the operation. A further extension is seen in the narcosis-resuscitation apparatus for operating under supernormal pressure. There were also many for

interesting exhibit.

Paris (London: V. J.

E.C.) showed specimens of their "tetra bands and compresses made with the very absorbent "tetra" gauzes. Close by Messrs. Walter Oehmke, of 21, Luisen Strasse, Berlin, showed some cleverly devised apparatus for the examination of blood-vessels. The exhibit included a blood pressure recorder, a new venous pulse recorder, and an apparatus for photographically registering the arterial and venous pulsation and heart beat. *At the adjoining stall the Inhabad* Co., Limited, of 9 and 12, March Strasse, Charlottenburg, Berlin, explained their systems of inhaling, which have considerable vogue in hydros and sanatoriums. Several forms of lifting apparatus for hospital and private use were exhibited by the company of that name (49, Ulundi-road, Blackheath, S.E.). The patent recumbent invalid lifters are made in several types, including a sacrum lifter, a lifting cushion (for bed pan), an "inclinator," and a "fracture and dysentery mattress." An interesting exhibit was that of Messrs. John P. White and Sons, Limited, of Pyghtle Works, Bedford, who showed a number of patent flush fire-resisting composite doors finished with a plain surface in teak, walnut, or mahogany suitable for hospital use. A hygienic claim is very properly made for these doors, since they are free from corners in which dirt can accumulate.

There was a variety of surgical dressings at the stall of Messrs. Cuxson, Gerrard, and Co., Limited, Birmingham, including lints, plain and sterilised or antiseptic, boric acid treated, double cyanide, sal alembroth, and so on. To these may be added a series of gauzes, bandages, and compressed dressings. The Stille-Werner Company, Limited, surgical instrument makers, of Stockholm, Sweden, had a neatly arranged exhibit of their specialities, including also aseptic hospital furniture, a new universal operating-table and stools, and an extension table and suspension apparatus designed by Waldenström. Close by Messrs. E. Cogit et Cie., of 36, Boulevard St. Michel, Paris, showed examples of their bacteriological and microscopical appliances, while Mr. R. B. Turner, of 11 and 12, Foster-lane, London, E.C., had an exhibit a little further on illustrating his designs in aseptic surgical and medical glassware for hospitals, laboratories, and sanatoriums. There were also shown vaccine syringes, bulbs, and bottles and pipettes designed by Sir Almroth Wright. Sterile catgut, sterile bone wax, sterile blood-vessel sutures, with needle, and sterile horsehair were amongst specialities of the De Witt Luken Company, shown by Mr. Joseph Davis, of 13, Poland-street, London, W., while at the same stall there were a number of hypodermic syringes and thermometers and atomisers, manufactured by the Randall-Faichney Company. Mr. Sidney P. Holloway, of 115, Richmond Park-road, Bournemouth, exhibited tests for heterophoria in near and in distant vision, an ingenious electric resistance for applying continuous dry heat and an improved axis-finder for cylindrical lenses. Amongst novelties shown by Messrs. Louis and H. Loewenstein, of 28 and 29, Ziegelstrasse, Berlin, were cystoscopes with bright optical attachments for exploration, and some convenient apparatus for electro-therapeutic use. Lastly, Mr. W. Longmate, of 56, Weymouth-street, Portland-place, London, W., exhibited a series of surgical appliances made with a non-inflammable material, artificial limbs, spinal supports, splints, and corsets. The claims made in favour of these non-inflammable surgical appliances appear reasonable, as it is obvious that they can be used with certain advantages compared with leather or poroplastic. Steel supports are not required and the appliances are very light in weight, easily adaptable to shape, and therefore comfortable.

(*To be concluded.*)

THE CLOSING MEETING.

The Congress met for the last time in general session at the Albert Hall on Tuesday, August 12th, at 3 P.M. The Address on Public Health was delivered by the Right Honourable JOHN BURNS, President of the Local Government Board, before a large and appreciative audience, and will be found in full in this issue of THE LANCET.

There is always something pathetic in the closing meetings of these great international congresses. The ceremony is generally held in the same hall as that in which the inauguration took place, but the audience has sadly dwindled. For the inauguration everyone is present, from the closure more than half the members are absent, a large number having already hurried home. At the opening all is expectation, and the colour of uniforms and the glitter of orders make the scene gay. At the closure stars and tunics are already packed, and their owners wear customary solemn suits. Expectation is replaced partly by a genuine feeling of gratitude for hospitality received and partly by frank relief that an over-strenuous interlude has terminated. Thus it happened in the Albert Hall on Tuesday afternoon that there were so few persons present, that the ordinary members of the Congress were early invited to take the seats which had been reserved for Government representatives, the delegates of universities and societies. Doubtless many more persons not members of the Congress, but belonging to the general public, would have attended had they been able to obtain admittance, but they were all rigorously excluded, as the presence of a Cabinet Minister brought with it a risk of some outburst on the part of the suffragettes. In fact, there was a small disturbance of this sort. At 3 o'clock Mr. Burns commenced his address, and had hardly read ten lines when a woman from the gallery shouted, "John Burns, I protest against your standing here in the name of the Government; I protest." During the next 20 minutes six different women and one man interrupted the proceedings, but on their expulsion peace prevailed and Mr. Burns was able to read the rest of his speech in quietude, and concluded punctually at 4 P.M.

As Mr. Burns described how successfully typhus fever had been stamped out of this country there was applause, and the allusions to the work of Chadwick, Farr, Pasteur, and Manson were similarly greeted. And when Mr. Burns said that "happily there are signs that medical research will be assisted by the State in future on a scale not previously contemplated," the applause was prolonged. Mr. Burns, at the end of his eloquent address, raised the enthusiasm of his audience by adding a few words to his written speech, when protesting against the wastefulness of armaments. He presented himself as an artisan who, by the confidence of his fellow countrymen, had been raised to the position of a Cabinet Minister. It was in the name of his fellow working men—the men who worked in the pit, the factory, the mill—that he wished to thank the medical profession for all the care they had bestowed on the lowly and the weak. Might medical men, he added, still continue to be inspired by the best traditions of the great profession to which they belonged. If they would temper the spirit of Sydenham with that of Robert Owen, of Shaftesbury, and Florence Nightingale, they would distinguish themselves as much in the work of rescue as the boldest of soldiers.

After a short interval the proceedings at the closing meeting commenced.

The report of the Permanent Commission of the International Medical Congress, including resolutions sent up by the sections, was read in French by the General Secretary of the Permanent Commission, Dr. H. Burger.

The report was as follows:—

At its meeting on Friday, August 8th, the Permanent Commission of International Congresses of Medicine carried the following resolution:—

Re the Eighteenth International Congress of Medicine.

The Commission unanimously decided to accept the invitation of the Bavarian Government and of the Town and University of Munich to hold the next International Congress of Medicine in that town in 1917.

The Commission further accepted the recommendations of the committees appointed to award the Congress prizes as follows:—

A. The Moscow prize, awarded to Professor Charles Richet, of Paris, for his work on anaphylaxis.

B. The Paris prize, awarded to Professor A. von Wassermann, of Berlin, for his work on experimental therapy and on immunity.

C. The Hungary prize, awarded to Sir Almroth E. Wright, of London, for his work on anaphylaxis.

At its meeting on Monday, August 11th, the Permanent Commission of the International Congress of Medicine carried the following resolutions:—

I. The Committee of the Permanent Commission was elected as follows:—

President: Professor Dr. Friedrich von Müller, of Munich (President Elect for the Eighteenth Congress).
Vice-Presidents: Monsieur Calman Muller, of Budapest (President of the Sixteenth Congress); Sir Thomas Barlow, of London (President of the Seventeenth Congress).
Secretary-General: Monsieur H. Burger, of Amsterdam.
Assistant Secretary: D.Ph. van der Haer, of the Hague.
Member: Monsieur L. Dejace, of Liège (President of the International Association of the Medical Press).

II. Resolutions of the Sections.

The following resolutions have been sent up by the Sections of Congress:—

A. By the combined Sections of Dermatology and Syphiligraphy (XIII.) and Forensic Medicine (XIX.).

That, sensible of the ravages wrought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the Governments of all the countries here represented—

(1) To institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain.

(2) To make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for.

B. By the Section of Tropical Medicine and Hygiene (XXI.).

a. The section is of opinion that beri-beri among natives who live principally on rice is brought about by the continuous and too exclusive use of rice submitted to a too complete milling, which removes the cortical and subcortical layers of the grain.

b. The section urges all authorities charged with the health of native communities to restrain by every means in their power the use of this rice in the dietary of coolies.

c. In view of the proved non-infectiousness of beri-beri the section suggest that all port and sanitary authorities should abolish foreign quarantine and other restrictive measures against this disease.

d. The section resolves that the malady known hitherto under the name of Malta fever shall in future be named "undulant fever."

All these resolutions will be considered by the Permanent Commission.

C. Resolution proposed by certain sections of the Congress:—

That this Congress records its conviction [illegible] on living animals have proved of the utmost service [illegible] and are indispensable to its future progress. [illegible] strongly deprecating the infliction of unnecessary pain, [illegible] alike in the interests of man and of animals, that it is not desirable to restrict competent persons in the performance of such experiments.

III.—The Permanent Commission proposes this resolution to the Congress:—

The P[illegible]nission, considering that the hospitality [illegible] has surpassed all expectations, and con[illegible]ic Congress has been admirably prepared and organised, expresses its sincere and profound gratitude to the *committee of Congress and in their persons to the whole medical* profession of England

The propositions of the Permanent Commission were carried by acclamation

The PRESIDENT then proposed a vote of thanks from the Congress to the Government of H M the Queen of Holland for their generosity in defraying the expenses of the Permanent Commission of the International Congress of Medicine The vote was heartily accorded

The official delegates of the governments represented, whose names we have already given, now bade a formal farewell to the President of the Congress in commendably brief terms

Dr RAOUL BLONDEL, on behalf of the International Association of the Medical Press, congratulated the organisers of the Congress upon its great success

Sir THOMAS BARLOW then closed the Congress with a few brief words, the noticeable message of which was that the medical profession should set a united face against the waging of war.

A CANADIAN ADIEU

The Canadian members of the International Congress of Medicine met on Tuesday morning, August 12th, and unanimously passed the following resolution, which was moved by Dr J T Fotheringham (Toronto) and seconded by Dr J. M Elder (*Montreal*) —

That we wish to offer to the President, Sir Thomas Barlow, to the

address

On behalf of the Canadian ladies we wish to thank the committee of ladies here for the profuse and well-ordered hospitality shown by them, and the *many arrangements made for the comfort and entertainment* of our wives and daughters

The resolution closed with a hearty expression of thanks and good wishes, and is signed by Dr W H B Aikins as chairman and Dr H B Anderson as secretary

AN INTERNATIONAL ASSOCIATION OF ORTHOPÆDIC SURGERY

During the Congress advantage has been taken of the thoroughly international character of the Orthopædic Section to initiate an International Association of Orthopædic Surgery. A committee, representative of the undermentioned countries, has therefore been formed and authorised to found an international association to further the progress of orthopædic surgery, to correlate the literature of the various countries, and to arrange for the holding of international meetings The committee consists of the following representatives, all of whom have been present in London Great Britain, Mr Robert Jones, of Liverpool, Holland, Professor Murk Jansen, of Leiden, Italy, Professor Putti, of Bologna, France, Professor Kirmisson, of Paris; the United States of America, Professor Lovett, of Boston, Germany, Professor Vulpius, of Heidelberg, Hungary, Professor Dollinger of Budapest, Canada, Professor Clarence Starr, of Toronto, Russia, Professor Turner, of St Petersburg, and Austria, Professor Spitzy, of Vienna, who will act as secretary of the committee

THE TRANSACTIONS

It has been arranged to supply the complete set of the Transactions of the International Congress of Medicine for a subscription price of £4 Applications should be addressed to the publishers, Messrs Henry Frowde, Hodder and Stoughton, Falcon square, London, E C

WESTERN INFIRMARY, GLASGOW —The managers of the Western Infirmary, Glasgow, have appointed Sir George T. Beatson, K C B., who recently retired from the position of visiting surgeon, an honorary consulting surgeon to the infirmary in recognition of the valuable services rendered by him to the institution The vacancy in the visiting staff has been filled by the appointment of Dr. George H Edington as a visiting surgeon

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ITALY.

(FROM OUR OWN CORRESPONDENT)

New Temperance Bill

THE number of cases of alcoholic insanity admitted to the lunatic asylums has almost doubled, and the deaths ascribed to alcohol have increased in a similar proportion. Italy
occupies a high
among the natic
per head of popu
owing to the frequency with which the wine is adulterated Di Vestea, examining 146 samples of Italian popular wines, found fusel oil present in all but 9 The legislator, however, is confronted by the difficulty that the vine is cultivated almost all over Italy and constitutes no small part of the riches of the country The present Bill leaves wine alone, but forbids the sale of drinks which contain more than 21 per cent of alcohol in any licensed place except with the permission, to be renewed from year to year, of a commission permanently established in each province. These commissions will also decide on the hours during which licensed houses may remain open The sale of these strongly alcoholic drinks is absolutely forbidden on holidays and on election days, or at any time to persons below 16 years of age The serving of alcoholic drinks to persons intoxicated or obviously of unsound mind is also forbidden The importation, manufacture, or sale of absinthe is absolutely prohibited A person twice condemned for drunkenness or for crime committed in a state of drunkenness shall have his name erased from the lists of political and municipal electors for a period of five years To limit the number of licensed houses, which in 1909 amounted to 1 for every 159 inhabitants, it is enacted that wherever the licensed houses exceed the proportion of 1 to 500 inhabitants no new house may be licensed

The Premio Riberi

An awkward situation has arisen in connexion with the assignation of the Premio Riberi This, a sum of 20,000 lire, has to be awarded by the Royal Academy of Medicine of Turin to the author of the best work or discovery made during the preceding five years in the field of medical science The Academy appointed a committee of five members to examine and report upon 12 competing works. This commission was unable to come to a unanimous decision Two pronounced in favour of Dr Negri, the discoverer of the "corpi di Negri", one in favour of Professor Pagliani, an old and important member of the Academy, for his "Treatise on Hygiene," now in course of publication, and two were unable to make up their minds A meeting of the Academy was called and the reports of the committee presented In the circumstances a number of members desired further consideration of the matter and supported a motion to adjourn the meeting Put to the vote there were 19 for and 19 against the adjournment After this a number of those who had voted for the adjournment left the hall, but the opposition remained and demanded that the sitting should proceed The remainder of those in favour of adjourning, including Senator Carle, the President elect, and also the secretary of the Academy, left the hall in sign of protest The remaining members voted the prize to Professor Pagliani. A further meeting of the Academy was called and referred the decision of the legality of the award to a committee consisting of the President of the Academy of Sciences, the President of the Order of Advocates, and the President of the Court of Cassation of Turin Unfortunately these gentlemen have declined the honour A Government inquiry seems the only way out of the difficulty

Malarial Zones

The Director General of Public Health has published the list of malarial districts up to Dec 31st 1912 The provinces completely immune from malaria have risen from 10 in number in 1906 to 13 in 1912 They are Ancona, Arezzo Cuneo, Florence, Genoa, Lucca, Macerata, Pesaro, Piacenza, Portomaurizio, Belluno, Forli, and Massa Carrara The last three named are those which have been freed since 1906 There are still 3398 malarial zones divided among 2652 communes

August 9th.

1640

THE LANCET.

LONDON: SATURDAY, AUGUST 16, 1913.

International Medical Congress: The End of the Meeting.

The Seventeenth International Congress of Medicine is now over, and although the crowded events of the past ten days are too near to be seen in clear perspective, it is already possible to pronounce the meeting as a whole to have been an immense success. We can congratulate those immediately responsible for the organisation upon the result of their labours, and this with no stint of praise, and with full knowledge that we are giving expression to sentiments universally held. The number of members who have attended the Congress from every part of the civilised world surpasses all previous records, and we believe that the welcome given them by the British medical profession, as well as by the State, the City of London, and many private hosts, has been worthy of the occasion. All that public and private hospitality could do for the entertainment of our visitors was done, and we are confident that the International Medical Congress of 1913 will long be remembered with pleasure by guests and hosts alike. A certain scantiness in attendance at some of the sectional debates may have suggested to severe spirits that the element of social pleasure was being over-cultivated, but the social side of an international medical meeting is, indeed, very important. One of the chief aims of an International Medical Congress is to strengthen the bonds of fellowship between the members of the medical profession in different countries and to demonstrate to the world the unity of medicine in its methods and in its ideals. Mainly this is done by the constitution of a sort of scientific parliament of the nations, but the social intercommunion of the members of such a parliament helps greatly in a mutual comprehension of aims and attitudes. That the London Congress has been a gay one socially enables us to forecast with greater certainty that its outcome will be solidly valuable.

We make no attempt at an appreciation of the worth of the scientific work accomplished. It is obviously too early yet to say how much has been gained or in what respects medical thought and practice have been stimulated or reshaped by the multitudinous papers and discussions. But it is safe to assume that our general knowledge and efficiency have been advanced all along the line through this great interchange of ideas and experience among representative workers of different races. An interesting Medical Museum in connexion with the Congress, and the magnificent Museum of the History of Medicine organised by Mr. H. S. Wellcome, gave chances for personal discussion of which eager advantage was taken, while a vast exhibition of surgical appliances, drugs, and special foods was visited by steady crowds of medical men seeking practical information. From the necessarily condensed accounts of the sectional meetings which we begin to report this week, it is evident that the range of scientific subjects dealt with has been enormous. Since the Congress was last held in London 32 years ago the territory of medicine has been widened, and provinces have been added in every direction. For the time being it may seem that as a consequence specialisation has increased regrettably, but a wiser way to regard the situation is to hope that a strong general government will be established over all recent annexations. The sections grow more numerous, but the fact comes out that definite partitions between different branches of practice do not exist, and this has been well illustrated at the recent Congress by a number of profitable joint discussions between more or less allied sections. This is a departure of the happiest omen, being a visible sign of that simplification of therapy advocated in the addresses before the Congress of Professor Chauffard and Professor Cushing. Time alone can help us to gauge the relative importance of the work done in the various departments of medicine, but it seems likely that some of the practical conclusions arrived at in these joint sessions will come to be classed among the most valuable legacies of the gathering.

Two important pronouncements, echoed and re-echoed through the sections, must be mentioned here. The pressing need for a State inquiry into the control of venereal disease, which was pointed out in these columns on June 28th last, has been affirmed by a joint meeting of the Sections of Forensic Medicine and of Dermatology and Syphilography with immediate results; while at the instance of the Section of Physiology a resolution has been passed maintaining the value and importance to medicine of the experimental method of research. If the Congress had borne no other fruit than these two pronouncements all the labour spent over it would have been justified, and this fact did not escape the notice of the lay press. For a feature of the International Congress of Medicine has been the keen and detailed interest in its proceedings shown by certain of our great daily papers, especially by the *Times* and the *Morning Post*. Not only have the general addresses been substantially published and the social functions chronicled, but even the daily sittings of the sections have been reported at considerable length. The report of Professor Ehrlich's address in the *Times* was a proof of great resource, and the publication of a long summary of sectional proceedings daily must have been the fruit of excellent organisation. The *Morning Post*, where the sectional reports have also been good, must be honourably associated with the decision of the Government to institute an inquiry into syphilis, for the publication in that paper recently of a weighty medical communication on the subject brought its importance before a lay audience with great force and exactly at the right time. The intention of lay papers to arouse the public to a better understanding of the aims and methods of modern medicine is all to the good of the medical profession. We know that sometimes danger may lie in the almost inevitable focussing of attention upon sensational side-issues, but the good outweighs the ill.

It remains to pay a definite tribute to those responsible for the success of the Seventeenth International Congress of Medicine. Without fulsomeness we cannot praise adequately the officers of the Congress for their untiring labours throughout the meeting, but our readers ought to understand that the success was really due to the preliminary work of some eighteen months. And that work was real and earnest. With everything upon so vast a scale the difficulties of central organisation were proportionately heavy, and the fact that from beginning to end no hitch occurred in any of the general arrangements speaks volumes for the care and foresight of Dr. HERRINGHAM, the very able secretary-general, and his colleagues, among whom Sir ALFRED PEARCE GOULD, chairman of the executive committee, Mr. MAKINS, the treasurer, and Dr. CLIVE RIVIERE, secretary of the reception committee, must be specially mentioned. In their splendid efforts for the success of the meeting the executive officers had the constant support of the President, Sir THOMAS BARLOW, who, as all who knew him had foretold would be the case, proved himself to be a veritable head of the Congress, and whose simple and outspoken style of oratory, where always the meaning and not the phrase had been studied, won great appreciation. In bidding farewell to our medical brethren from every corner of the world who have honoured this country by their presence in such large numbers during the past fortnight, we may congratulate them upon taking part in one of the most interesting and important scientific gatherings that has ever been held.

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International Medical Congress: The Address in Pathology.

THE study of medicine not so long ago seemed to be at the least uninteresting, if not repugnant, to the general intelligence. It is quite clear that this spirit no longer prevails, and that the public is now alive to the fact that there is much in the science of healing which is of the greatest interest to all, quite apart from sociological questions of public health, of quarantine, or of medical service in navies or armies. No one who reads the Address in Pathology, which was delivered in general session of the Congress by Professor EHRLICH on Friday in last week, can fail to understand why the problems of our science have of late become so fascinating to all intelligent men, for in his exposition of chemotherapy he told a tale replete with romance. Indeed, many would say that never before has so marvellous a tale been told as the record of the modern methods of devising and using medicines; certainly no one has ever before given so excellent an account of the way in which our latest remedies act against those microscopic foes which threaten the life and health alike of men and animals. "Interesting as a novel" is a common expression, but there are few novels possessing episodes and situations as exciting as those developed in Professor EHRLICH'S narrative. If we put aside the idea that we are dealing with questions of actual life and death, with potentialities of salvation and destruction in all sorts and degree, and regard the story as a romance of the sensational school, we feel that we are listening to a tale full of wonders; and all of us are similarly affected, whether we have studied medicine or not, if we have sufficient technological equipment. But when we appreciate that the message of that tale is to announce that of late there has been put into medical hands a weapon—nay, more, a whole armoury of weapons—which may go far to free the world from many of the worst diseases which now enthral us, we can only confess that the tale cannot be surpassed in interest and excitement by any that could be told.

The basis of the new medicine has been the recognition, or at least the partial recognition, alike of the way in which the infective diseases work us harm and of the way in which the unaided body strives to combat the attack. The connexion of many infectious maladies with the presence of germs was obvious, but frank allowance had to be made for the fact that not in all such diseases had we succeeded in seeing the actual micro-organism which was at the root of the trouble, while the natural history of the different occurrences had huge gaps. We knew, for example, that in many of these diseases one attack conferred an almost perfect immunity against subsequent attacks, but we knew nothing as to the way in which this immunity was won, and we knew that in nearly every case the use of drugs was able to do little or nothing to cut short the natural course of these often common maladies. One definite step had been made in the control of such infectious conditions: the discovery of the efficacy of vaccination had enabled us to confine within very narrow limits the field of action of small-pox. If vaccination had been rightly used it is probable that by this time the disease would have entirely disappeared from our midst or would have shown only by occasional attacks in connexion with immigrants that imported cases alone could exist here. But nobody now denies that while we were employing vaccination with the greatest practical success we were as yet uninformed as to the precise mode of action of this prophylactic; the method, efficacious though it had proved, was empirical. Gradually we have come to learn something of the complex method by which the animal body defends itself against the assaults of micro-organisms; and our knowledge, incomplete though it may be, has enabled us to devise methods of aiding the efforts of the body to get rid of the invading germs. Gradually we have learned, and for this knowledge we are in great part indebted to Professor EHRLICH, that both the tissues of the body and the bodies of bacteria and other disease-causing organisms are vulnerable because they possess particular points of attack. Professor EHRLICH'S famous side chain theory, theory though it be, explains in a comprehensive manner what may happen. The assumption that protoplasm is composed of complex molecules, bearing on them atomic groups of such instability that they are ready to combine with other atomic groups for various chemical functions, has indicated to pathologists the line along which the attack on the specific germs may be most effectively conducted. Every chemical substance cannot equally affect all germs; every antiseptic has its own peculiar property of destroying micro-organisms, and this special power will depend on its ability to link itself with what Professor EHRLICH has termed "the side chains."

This "parasitotropic" power varies enormously with different substances for any particular germ; but our selection of remedial agents is limited by the necessity of choosing only those which at the same time are the least harmful to the tissues of the host. Here the art of the modern chemical investigator has come to the assistance of the therapist. A host of substances have been placed at his disposal, and they can be tried in every way on the special germ. Thus it has come to pass that we possess salvarsan and neosalvarsan, which have done so much to place syphilis under our control. A difficulty, however, must be remembered. Not only can the human body develop substances within itself to protect itself against infective germs, but the germs can protect themselves against the remedies which have been administered to destroy them, a circumstance which serves to account for the fact that quinine sometimes loses its power over the course of malaria. But Professor EHRLICH has brought forward evidence which suggests that there are several different kinds of side chains in each micro-parasite, and when the germ has become resistant to one drug it is still vulnerable to another; indeed, he has shown that the administration of the second drug may deprive the germ of its power of resistance against the first drug. Again, under his indefatigable industry and ingenuity it has come to light that in closely allied micro-organisms the side chains are often very much alike, so that a substance which has been devised for the destruction of one germ is generally of use in the treatment of other germs of an allied nature. Salvarsan was introduced into therapeutics solely for the treatment of syphilis, but it has proved to be efficacious in the treatment of frambœsia or yaws; in fact, so great is its power that in Surinam a hospital containing 300 beds for frambœsia has been diverted from its original use because a single dose of salvarsan suffices to cure a case of frambœsia, and the supply of patients has failed.

In one other way has the study of the side chain theory already rendered aid in the treatment of disease. As there are several forms of side chains in the parasite, each of which is suited for the action of a different drug, it will follow that we can obtain a satisfactory action by the administration of a comparatively small dose of several drugs rather than by the full dose of one drug, and at the same time the harmful effect on the body of the host is lessened. And now a wonderful result is found to follow—the sum of the actions of these several small doses of different drugs is greater than a full dose of any one of them, so that there may be found to be, a reason, or at least an excuse, for the polypharmacy of the Middle Ages. The new science of treatment has done much, and yet those who know most of the matter cannot but feel that we are as yet only at the beginning of the subject. If we have learned so much in the few years in which the matter has been studied, what is the prospect of the future? An almost boundless field of possibilities is opening before us. The powers of treatment will be still more enhanced, and many diseases at present beyond our control will become amenable to the action of drugs. Is it too much to hope that in their turn tuberculosis and cancer will become controllable? The great increase in the number of workers multiplies the possibilities; every civilised country is sending its quota of soldiers to join the ranks in this war against disease, and the result of the conflict cannot remain in doubt.

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The Modern Study of Genetics.

THE address delivered at the International Medical Congress by Professor WILLIAM BATESON on the subject of Heredity will be found published in full elsewhere in this issue of THE LANCET. With such a subject before him it was natural that Professor BATESON should attempt only to give a bird's-eye view of the interesting position which we have reached to-day, but he added some valuable indications as to the far-reaching directions in which the studies, comprehensively described under the title of Heredity, are being carried on. To do more would have been impossible for anyone who knew, as well as the orator knew it, the enormous amount of work now being done by independent research or in laboratories—work of biological, pathological, and mathematical nature, and bearing directly upon heredity or indirectly throwing light upon its problems.

To the minds of medical men the influence of heredity has been present always—so present, indeed, that not long ago it was considered sufficient in many diseases, when allocating their causes, to allude to a defaulting ancestry and make no further ætiological investigation. But of recent years a more scientific spirit of inquiry into the influences of descent has sprung up with the development of the pursuit of eugenics. A school has arisen which is attempting to place the whole subject of birth influence, physiologically considered, upon a firmer basis. Sir FRANCIS GALTON long ago foresaw that those aspects of physiology which had a bearing upon the study of heredity must soon become a chief pre-occupation for many reflective minds, and this is what has now come about. The aim of eugenics, as laid down by GALTON, was to bring multifarious influences to bear upon the community that should induce them to contribute to the advancement of the next generation, and it is obvious that the dissemination of a knowledge of the laws of heredity would be a most practical method of attaining this object. A consideration of such facts with regard to descent in animal and plant life as could be substantiated convinced the earlier workers in eugenics that traces of order were present in the principles of heredity which had hitherto been unsuspected; it was perceived that certain processes were likely to be followed by certain results, although in the beginning neither GALTON nor his immediate followers could go further. The resurrection of MENDEL'S discoveries came exactly at this critical moment. Professor BATESON, whose work as professor of biology at Cambridge was marked by great independence of thought, became a stalwart exponent of the Mendelian doctrines, with the result which is indicated in his address, when he says that the rediscovery of the work of the Abbot of Brünn showed that the apparently capricious order of the phenomena of descent were capable in certain ways and certain directions of simple analysis. By the application of MENDEL'S principles of heredity it now appears that the speculations of both the systematised and speculative biologists are found to need revision in the light of new facts, and these are being revealed by labours carried on in accordance with Mendelian lines. In that work of exploration all classes of naturalists will alike find interest. The methods are definite and exact, so that we need not fear the alienation of those systematists to whom all theoretical inquiry is repulsive. They are also wide in their scope and give opportunities for the stock-breeder and the gardener to coöperate with the biologist and the medical or veterinary expert in the pursuit of truth. No matter is as yet too trivial for attention, and workers may engage in genetic inquiries with the feeling that every fragment of solid evidence which they discover may take its place in the development of a coördinated structure.

The essence of the Mendelian principles is, in short, that the study of heredity can be undertaken upon a definite scientific basis as a branch of biology. The pursuit of these principles is no denial of the work of DARWIN, as we have before and more than once had occasion to point out, while it is to our minds certain that if MENDEL'S work had fallen into the hands of DARWIN—as it might easily have done—the history of the development of evolutionary philosophy would have been very different, for it is certain that DARWIN would have admitted the presence of variations occurring as discontinuous phenomena. We welcome the definite association of modern medicine with the latest researches in genetics which is implied by the delivery in general assembly of an International Medical Congress of an address on Heredity. The study of the problems of descent will illuminate for the surgeon and physician of to-day many dark places, while at any moment it may furnish magnificent opportunities for improving the future of the race.

Annotations.

"Ne quid nimis."

THE LEIPZIGER VERBAND.

THE energetic medical union known as the "Leipziger Verband," to which allusion has been made on several occasions in these columns, lately held a meeting in Elberfeld in connexion with the general practitioners' association, called in German the Deutscher Aerzte-Vereinsbund The secretary reported that the number of members was 25,184. There are about 35,000 medical men in Germany, this number including civilians in the Government service, medical officers of the army and navy, and those who for various reasons are not in private practice, some having retired and others being engaged in scientific research or in the duties of an appointment. It may therefore be said that nearly all the medical men engaged in club practice belong to this union, which has 129 local branches and conducts correspondence on so extensive a scale that last year no fewer than 400,000 letters were received and written by its official staff. The union has lately concluded arrangements with the post-office and with the association of German steamship companies according to which only members of the union are eligible for appointments on board the vessels of the association. At the meeting there were discussions on the system adopted on the Prussian State railways where the free-choice system is objected to, and on the new insurance institution for clerks in which only Government medical officers are allowed to give certificates. The position of the medical profession with regard to philanthropic societies was discussed, as was coöperation of the profession with institutions insuring their policy-holders against accidents under the Workmen's Insurance Act, and the question of foreigners practising medicine in Germany. Representatives of the Medical Society of Kissingen suggested that the meeting should petition the Government to prohibit foreign medical men from practising without a German diploma, while allowing those to practise who are natives of countries where German medical men are allowed to practise without passing the professional examinations of the countries in question. The motion was agreed to.

JULY AT HOME AND ABROAD.

THE weather of July, contrary to the general rule, was finer and drier in the west than in the south-east and east of England, but in no part of the kingdom was the month as a whole very warm. The general level of the thermometer was kept rather low by a flow of air from the north-east, north, or north-west, and although maximum readings above 70° were not very uncommon, the figure of 80° was seldom recorded. Rain was frequent over the east and south-east until rather late in the month, but then the droughty conditions previously general in the west extended to the most eastern districts also. In the metropolitan area, at Kew, the mean maximum temperature was no higher than 66½° and the mean minimum as low as 52½°, the respective figures being 4° and 1½° below the average. At Bath and Nottingham, where the mean maximum was 65½°, there was also a defect of 4°, while the mean minimum—51° at both places—was 1° or 2° below the normal. Further north, at Buxton and Harrogate, the mean maximum temperature was only about 62½° and the mean minima 48° and 49° respectively, the divergence from the average being about the same as in London. On the south coast of Devon and at Bournemouth the day temperature was higher than in London—a very unusual feature for July. Torquay had a mean maximum temperature of 67½° and Bournemouth 68½°. At night, however, the Devonshire resort was warmer than Bournemouth, the mean minimum at Torquay being rather above 55°, or 2½° higher than that at Bournemouth. Along the north coast of Cornwall the wind, coming from the sea, prevented great warmth, and the mean maximum temperature at Newquay was only 62½°. Brighton was a degree cooler than London during the day and a degree warmer at night, while at Jersey both the mean maximum and mean minimum were practically the same as at Torquay The supply of sunshine was generally very meagre, especially in the east and south-east. While an average July gives 204 hours to Kew, last month could manage no more than 108 hours, a deficiency of nearly 3½ hours per day. In some other localities the deficiency was even greater, amounting at Nottingham to 114 hours, the total number of hours recorded being only 76. In the south-west of England, in spite of the absence of rain, there was much cloud. At Torquay the total sunshine, 197 hours, was 51 hours below the normal, although it was 55 hours above the beggarly figure of July, 1912. At Newquay there were 203 hours, and at Jersey 197 hours, the latter figure showing a deficit of 54 hours. Over the greater portion of the west and south-west the weather was in a droughty condition throughout, and even in the south-east and east the total rainfall was generally less than usual in spite of the frequent falls until after the 20th. Kew had no rain after the 22nd, but previously rain had fallen on 14 days, yielding altogether 1·9 in., against an average of 2·3 in. Brighton was one of the very few spots with an excess of rainfall, its total being

3·5 in., or 1·4 in. more than the normal. At Torquay, where an average July yields 2·3 in., there was only 0·3 in.; at Bath, 0·4 in.; Jersey, 0·5 in.; and at Newquay, 0·7 in. At Harrogate and Buxton the deficit was 1·8 in. and 2·6 in. respectively. From an agricultural point of view the effects of the droughty conditions would have been more serious if the temperature and sunshine had been equal to the average, and evaporation consequently more active. As in this country, the weather on the continent was rarely very hot. Maximum temperature readings above 80° occurred much less frequently than ordinarily at Paris, Brussels, and Berlin, and not once was the thermometer so high as 85°. Both at Paris and Berlin the mean maximum temperature was 70½°, the mean minimum at Paris being 53½°, and that at Berlin a degree higher. Brussels was less warm than Kew, both during the day and night, but the difference was very slight, especially during the daytime. The rainfall was generally more frequent and also heavier than in this country. At Brussels, where 16 days brought more or less rain (0·04 in. or more), the aggregate was as much as 3·8 in.; at Paris, where rain fell on 11 days, the total was 2·8 in.; and at Berlin, where there were only eight rain days, 1·9 in. Sunshine was in default except rather late in the month. At Paris there was less than in the south-west of England, the figure being only 163 hours. Switzerland and the Jura region of France experienced considerable spells of fine, moderately hot weather, interrupted by an occasional few days of rain and local thunderstorms, and in Italy the month differed little from an average July, very little rain falling, and the temperature rising to about 90° over the inland districts and to several degrees above 80 on the coast.

AN IRISH-AMERICAN TALISMAN.

SELDOM has it been possible to trace the origin of a talisman endowed with supposed medicinal virtues. It is said, however, on good authority, that the Irish poor of Chicago are, or have lately been, handing about among themselves a charm, in the shape of a large oblong rock crystal, which presumably cures diseases and of which the history is at least partly known. This history was told recently in the rooms of the Royal Irish Academy in Dublin, where a priceless collection of some 30 ancient Irish MSS. are stored in a safe among the books which once constituted the library of Thomas Moore, the poet. The crystal in request among the Irish of Chicago was prized out of its sockets in the lid of a shrine or casket containing one of these MSS. This was "The War-Book of the O'Donnels," and the shrine enclosing it is a beautiful fourteenth century box, with embossed figures of saints and large crystals of a pinkish hue, caused probably by a substratum of colour underneath the stones themselves. This casket was anciently chained to the breast-plate of the Bard of the O'Donnels, who carried it in battle. The book, an honoured literary record of the history and pedigrees of the O'Donnels, was inside the casket, and remained there until the vandalistic "forties" of the nineteenth century, when the then O'Donnel turned the shrine into a glove-box, which he kept on his hall table. A nursemaid in his house, seeing the dishonour into which this venerable Celtic relic had fallen, took advantage of the fact that one of the brilliants in the cover was loose to prize it out and present it to her young man, who emigrated. Of recent years a communication reached the present head of the clan or sept to the effect that a dying penitent had confessed that he possessed the talisman and knew its origin. It was suggested that the charm would be returned on receipt of a cheque for a substantial amount, as the holders of the crystal were very poor. The cheque, however, was not sent, as the stone was considered not worth it. The talisman is still at large, and the Irish poor of Chicago doubtless continue to effect supposed cures with it. Stones and crystals capable of effecting cures are often cherished in the Northern Highlands of Scotland, but their histories are not as definitely traceable as this one. At the time of the Highland Exhibition in Edinburgh some five or six years ago many of these stones were lent by the clans and exhibited, and an account of them was published by the *British Medical Journal.* Medicinal stones are known to all primitive peoples. They are mentioned in the Prose Edda, and in the shape of fossil sea-urchins were greatly prized by the ancients, who bought them from the Druids of Gaul. Akin to these are the "bezoar stones" of the Middle Ages and the porous snake-stones of Dutch South Africa, which, when applied to a snake-bite, suck up the venom and drop from the wound when replete. Many English practitioners in remote countrysides, such as may be found in Somersetshire or Cumberland, could tell of similar relics of stone worship.

CANCER IN RELATION TO FUEL.

A SOMEWHAT novel relationship has been suggested by Mr. C. E. Green, F.R.S.E., in two recent communications to the *Edinburgh Medical Journal* between the local incidence of cancer and the nature of the fuel consumed in the houses of the inhabitants. The author's first investigation on this subject dealt with the local prevalence of the disease in the county of Nairnshire, in which the death-rate is notably high. It transpired that the incidence of cancer was apparently limited strictly to those districts of the county in which coal was consumed as fuel and that only one death from this affection had been observed within ten years in the other portion of the district in which peat was the only substance burnt. A further series of researches were next undertaken into the cancer mortality of the county of Orkney, an area made up of a large number of islands in some of which peat alone is used as fuel, in others coal. In the whole district the deaths from cancer form 1 in 14 of the total number of deaths; but while in some islands the cancer rate is 1 in every 7 of all deaths, in others it is only 1 in 27 or 28, and in Stenness it is 1 in 42. At first sight the relationship of the disease to the consumption of coal was well borne out, islands with a low relative mortality being found to be peat-consuming districts, while those with a high percentage were users of coal. Notable exceptions to the rule were, however, forthcoming in three districts showing high rates, in which peat was the usual form of fuel, and further investigation was therefore directed to the quality of this material in the different parts. A very striking divergence in this was at once apparent, for examination of samples of peat from these areas revealed the fact that the substance there obtainable was very different from that used in the cancer-free districts of Nairnshire first investigated. In the cancerous areas the peat used was found to be a hard blackish substance which crackled like coal and gave out long blue flames, unlike the soft smouldering qualities of ordinary peat. Chemical analysis also proved of great interest, as while peat from districts where there is practically no cancer was found to have a sulphur-content varying between 0·101 and 0·189 per cent., that from districts in which there was a low cancer mortality contained about 0·237 per cent. of this element, and that from cancerous districts showed amounts varying from 0·676 to 0·890 per cent. These results are very remarkable, forming a noteworthy instance of an exception which is finally seen to confirm rather than invalidate a rule. It would seem from Mr. Green's researches that there is a direct relationship between the sulphur-content of the fuel consumed and the mortality from cancer in the districts investigated. He attributes the ill-effects to the action of sulphur dioxide formed in the process of combustion, and notes an analogy between this and the formation of tumours on the roots of plants owing to the use of vitriolated manures. Whether sulphur be the true agent or not, we have before us one more piece of evidence tending to connect the incidence of malignant disease with the action of chemical irritants—a discovery which may be set beside Mr. H. C. Ross's work on the appearance of epithelioma in tar-workers and the well-known clinical observations on the frequency of intrathoracic neoplasms in cobalt miners and of scrotal epithelioma in chimney sweeps.

THE NATIONALITY OF ST. LUKE.

NOT only intensively, but extensively, the topics taken up and dealt with at the recent International Congress of Medicine have shown a marked development over preceding Congresses. Discussion has gone deeper and covered a wider area than on any previous occasion of the kind. Medical history, well-nigh for the first time, has received the consideration due to its inherent interest and to the accessions made to its subject-matter—prominent among these being the fresh light thrown on that fascinating personality the "beloved physician" and *bon camarade* of St. Paul, the author, moreover, of what Ernest Renan has pronounced the loveliest book ever written. A ship's surgeon in the mercantile marine of the Levant, and a Greek by nationality, who, in the practice of his profession, became friend and secretary of the Apostle of the Gentiles, in which capacity he bequeathed to Christendom the equally picturesque and historically valuable book of the "Acts"—such has hitherto been the received impression of St. Luke—an impression rather confirmed than materially modified by recent criticism. But now in the Historical Section of the Medical Congress, in which (Dr. Norman Moore worthily presiding) many ably compiled papers were read, Miss Melian Stawell, who shares with Miss Jane Harrison a claim to authority on Hellenic life and literature, comes forward with a new theory of the evangelist's nationality and *motif*—to wit, that he was a Roman and not a Greek, and that, as such, he was so impressed by the Æneas legend as sung by Virgil that he gives to the voyages of his hero something of the character of those of Æneas, the "determination" of both being to Rome, the haven and the ultimate seat of earthly authority, whence, as from a "coign of vantage," the mission of the Jew, as of the Trojan, might have its ecumenical diffusion. Miss Stawell propounds and defends this very striking thesis with the learning and the ingenuity she has accustomed us to expect from her, and anticipates objections to it with a fulness of detail that attests the care with which she has thought it out. Luke, she maintains, was no more a practising physician by profession than was his great contemporary in the healing art, Celsus, who, as a Roman patrician, owned a large number of slaves whose health and efficiency were duly attended to in the *valetudinaria* (or private hospitals) which were attached to every nobleman's estate. Like Celsus, he had mastered the Greek authorities in medicine, and while closely reflecting their nomenclature, and even phraseology (as elaborately shown in Dr. Hobart's monograph), he writes Greek as a Roman would do, who, consciously or unconsciously, gives it a Latin flavour. His very name, as indeed is universally admitted, is not Greek but Roman, and Miss Stawell thinks it not improbable that he belonged to the great *gens Annaea*, the patrician house of Spain, to which Seneca, Gallio, and the poet Lucan all belonged. On this hypothesis she sees the explanation of Luke's being left at liberty in Rome when his friend Paul was under surveillance; also why he knew so much as to Gallio's temperament, and why there is so marked a correspondence between the occasional Christian inspiration of Seneca and the Gospel. Conscious of being a "Civis Romanus" in even a stricter sense than Paul, Luke, according to Miss Stawell, in his pride of Roman citizenship and his homage to Cæsar, draws on Virgil's religious epic, which must have been even more familiar to him than it was to Dante, for the *motif* which, as it determined the Romeward voyage of Æneas, so it directed that of Paul, both being able to feel—

> Per varios casus, per tot discrimina rerum
> Tendimus in Latium.

In support of which view Miss Stawell finds, in the seafaring vicissitudes of both, correspondence as to "signs and symbols" which proves the dominating force in Luke's narrative of the Virgilian poem, and, while perfectly faithful in his narrative of voyage and shipwreck, inspires him to an insistence on detail which, but for that inspiration, would have been less vividly in evidence. Her whole theory, illustrated with many an apt coincidence, has this to be said in its support, that it fits in admirably with the suggestion of that great master of the "higher criticism," Professor Harnack, of Berlin—to wit, that the fundamental theme of "Acts" is "the travelling of the Gospel under the guidance of the Holy Ghost from Jerusalem to Rome." Biblical students may not (indeed, will not) in every case see eye to eye with Miss Stawell in her new reading of St. Luke's personality, career, and narrative, but none will withhold from her the praise of independence, nay originality, of view and of a scholarship as wide as it is well-grounded and deep.

THE PROPHYLAXIS OF CHOLERA BY INOCULATION.

THE prophylaxis of certain dangerous diseases by means of inoculation of vaccines is now generally recognised as being based on scientific principles and in practice yielding valuable results. Hitherto circumstances have been unfavourable to the adoption of this method for the prevention of cholera. It may be remembered that unsuccessful attempts by this means were made by Ferran in 1885 to check the ravages of this malady in Spain, and these results, for a time at least, discouraged the prosecution of research work on anti-cholera inoculation. But Ferran's procedures can hardly be regarded as similar to those now advocated, for he used "live" material obtained from patients suffering from cholera attacks of a mild type. His method may therefore be classed with a "variolisation" rather than with a vaccination. Naturally, in a country like India, where cholera is seldom absent for any length of time, the question of the prophylaxis of the disease has excited considerable interest. Some 20 years ago, or more, the subject of prophylactic inoculation against cholera began to receive careful attention, particularly by Haffkine, but the serious outbreak of plague in 1896 and its continuation in India from that time up to the present in serious epidemic form, put a stop to the investigations on anti-cholera vaccines, and it is only recently that the last-named investigator has been able to resume his researches. Haffkine has lately published a memoir on "Protective Inoculation against Cholera,"[1] and in it, while giving an epitome of previous investigations by other workers, he makes reference to recent official correspondence regarding vaccination against cholera and the study and preparation of a devitalised form of anti-cholera vaccines. In this connexion he draws attention to the support which his own views have received from the work done by other investigators. In his memoir are discussed the preparation of the vaccine, immunisation of man against cholera, and anti-cholera vaccine after its devitalisation. It is very desirable that an investigation, conducted in India during actual outbreaks of the disease under conditions of accurate scientific research as indicated by Haffkine, should be carried out at an early opportunity, especially in view of the advantages which a devitalised prophylactic is said to offer in practical application. Haffkine states that just as it is important to obtain first a positive result on the question of cholera immunisation in general and to use in investigating that matter the most reliable vaccine, so it is important to avoid in the beginning the possibility of failure in the study of the vaccine in a devitalised form. For this reason it is preferable at present to use the devitalised vaccine in its entirety rather than extractions or other derivatives of it. Two forms of this vaccine commend themselves to Haffkine —viz., (1) the first prepared by prolonged cultivation in a fluid medium and devitalised by heat and carbolic acid; and (2) one prepared by cultivation on a solid medium and devitalised, as soon as developed, by a solution of the same antiseptic compound. A study of the protection derived from the employment, separately, of these two forms of vaccine, in various doses, should, in Haffkine's opinion, afford information as to the direction in which the plan will have to be modified for further study.

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[1] Protective Inoculation against Cholera. By W. M. Haffkine, Bacteriologist with the Government of India. Calcutta: Thacker, Spink, and Co. 1913. *Pp. 93. Price 3 rupees, or 4s. 6d. net.*

ANÆSTHESIA BY INTRATRACHEAL INSUFFLATION.

ONE of the most interesting subjects dealt with in the Anæsthesia Subsection of the International Congress of Medicine is intratracheal insufflation. Some ten years ago attempts were made by Tuffier, and later by Kuhn and Lotsch, to fulfil the double object of producing *plus* pressure in the thorax as well as anæsthesia by intubation of the larynx. However, no precise knowledge came to us concerning the possibilities of using an intratracheal method for etherisation until Dr. S. J. Meltzer, of the Rockefeller Institute, New York, undertook his brilliant research upon the subject. Although the intratracheal route rendered possible by catheterisation of the trachea was adopted originally to enable the surgeon to perform operations upon the thoracic viscera, the pulmonary air being maintained at a *plus* pressure, the method has since proved to have a far wider application. The reduction of the pulmonary excursion to a minimum renders abdominal as well as other operations at once easier and capable of wider extension. Dr. Meltzer has shown that after catheterisation of the trachea the reflex current of air from the lungs is sufficiently powerful completely to prevent fluids or particulate matter passing from the buccal or pharyngeal spaces down into the lungs. The experiments made in which carbon particles were introduced into the mouth, or in which the animal was induced to vomit while intratracheal insufflation was practised, all proved that no matter gained access to the trachea around or through the tracheal catheter. The gain of this to the surgeon who has to undertake a grave operation upon the tongue, jaws, or for malignant growths invading the tonsil and pharyngeal wall is obvious. Although the procedure is simple to one familiar with its technique, it requires special apparatus and a thorough knowledge of the principles which Dr. Meltzer has shown to underlie the method. Indeed, some surgeons who are interested in thoracic operations have suggested that since *plus* pressure obtained by the intratracheal method of etherisation is usually broken at definite intervals to enable the pulmonary circulation to continue, the plan is open to objection. Now, as a matter of fact, Dr. Meltzer's experiment expressly indicates that no complete break in *plus* pressure is necessary. If a regular interruption is arranged for, and this is easily done, all that is necessary is that whatever the maximum pressure is set, say 20 mm. Hg, it shall be made to drop a each interruption, but never to the point of actual lung collapse. Warming and sterilising the air and ether vapou which Dr. Elsberg urges when the method is used for human patients appear to be advantageous even if not absolutely essential in the physiological laboratory. It is possible to apply this method for either ether or for nitrous oxide and oxygen. Chloroform so far as Dr. Meltzer's experience goes is far too dangerous, although we believe that no thorough attempt has yet been made with definite low percentages With those which have been used not only is there immediate danger, but tissue changes in the viscera rapidly appear evincing the effect of chloroform toxæmia. In Dr. Meltzer's interesting report before the Anæsthesia Subsection is a description of an extremely simple apparatus which, uncomplicated as it is, yet possesses the safeguards essential to every intratracheal etheriser—viz., a mercury pressure valve and a manometer. Dr. Elsberg's original apparatus fulfils all the requirements emphasised by Dr. Meltzer, with whom he worked, but less complex systems have been devised both in the United States and in this country. There can be no doubt of the value of the method which has now been adopted for thousands of cases, and, provided due safeguards are present, the simpler the apparatus and the technique the better. This work of Dr. Meltzer provides a convincing example of the value to the technical man of the experiments performed by the pure scientist who is unshackled by professional cares and free from the *idée fixe* which often tends to keep the anæsthetist within well-worn paths.

SCHOOL MEDICAL INSPECTION IN INDIA.

THERE is, perhaps, no community throughout the British Empire more enlightened, philanthropic, and public-spirited than that of the Parsis in Bombay, whose leading members have distinguished themselves over and over again by their generous support of hospitals and schools and in relief of distress generally. The principle that the best way to deal with poverty is to endeavour to prevent its occurrence, so far as this is practicable, and similarly that the best way to deal with disease prevalence is to endeavour to check its development at the earliest moment, has now for many years been accepted and carried out in practice by most European peoples. It is, however, only a very few years since, even with ourselves, practical steps have been taken in one very obvious direction—viz., the systematic examination of school children—to discover any physical defects there may be to prevent, or to hinder, them from growing up in good health and able to earn their own livelihood. Indeed, it may be said that in the metropolis itself the task has only been undertaken with thoroughness during the past year. Our Parsi fellow-subjects are quick to apprehend these western developments, and already a Bombay physician, Dr. Dadachanji, has brought the matter before the Zoroastrian Conference in an address, entitled "Parsi Education and Parsi Health: a Plea for the Communal Care and Welfare of our Children." The Indian educational authorities have not yet, as far as we know, taken steps to carry out medical inspection of school children throughout the country. At the Madras Sanitary Conference last November the subject was introduced by Dr. Amritaraj. Major T. Stokes, I.M.S., said that medical inspection had been commenced in the municipal schools in the Central Provinces, but owing to the difficulty of obtaining medical men to perform the inspection in the districts the scheme had been abandoned. Colonel E. Wilkinson, I.M.S., said that examination of the eyes was carried out in the schools in several Punjab towns. In Bengal there was no medical inspection at all, nor was there any in the United Provinces. It is obvious that in many parts of the country if the female children are to be inspected female medical practitioners will be required to do the work. As to the position which the Government are taking up on this question, or whether they are considering the matter at all, we have no information. *Festina lente* is a sound principle to act upon, and the work is too vast to be undertaken lightly. Probably a beginning will be made in the large towns.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns, with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 8887 births and 3957 deaths were registered during the week ended Saturday, August 2nd. The annual rate of mortality in these towns, which had been 11·4, 11·3, and 11·0 per 1000 in the three preceding weeks, rose to 11·6 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 11·3, against 10·6 per 1000 in London during the same period. Among the several towns the death-rate in the week under notice ranged from 3·0 in Hornsey, 5·7 in Gillingham, 5 8 in Dewsbury, 5·9 in East Ham and in Southend-on-Sea, and 6·1 in Enfield, to 16·9 in Middlesbrough, 17 3 in Wallsall, 18·7 in Barnsley, 19·2 in Dudley, and 20·0 in Stoke-on-Trent.

The 3957 deaths from all causes in the 96 towns were 183 in excess of the number in the previous week, and included 448 which were referred to the principal epidemic diseases, against 343 and 394 in the two preceding weeks. Of these 448 deaths, 264 resulted from infantile diarrhœal diseases, 77 from measles, 47 from whooping-cough, 36 from diphtheria, 18 from scarlet fever, and 6 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·3, against 1·0 and 1·2 per 1000 in the two preceding weeks. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 155, 149, and 214 in the three preceding weeks, further rose to 264, and included 48 in London, 26 in Liverpool, 19 in Sheffield, 18 in Manchester, 16 in Leeds, 12 in Birmingham, 11 in West Ham, and 10 in Birkenhead. The deaths referred to measles, which had been 69, 68, and 77 in the three preceding weeks, were again 77 in the week under review; of this number 15 were recorded in Stoke-on-Trent, 13 in London, 11 in Liverpool, 6 in Manchester, 4 in Walsall, and 4 in Salford The fatal cases of whooping-cough, which had been 55, 62, and 50 in the three preceding weeks, further fell to 47; 15 deaths occurred in London, 4 in Liverpool, 4 in Hull, 3 in Manchester, and 3 in Leeds. The deaths attributed to diphtheria, which had been 34, 35, and 31 in the three preceding weeks, rose to 36, and included 6 in Birmingham, 5 in London, 4 in Stoke-on-Trent, 2 in Birkenhead, and 2 in Liverpool. The deaths referred to scarlet fever, which had been 17, 20, and 15 in the three preceding weeks, were 18, of which number 5 were registered in London, 4 in Sheffield, and 3 in Birmingham Six fatal cases of enteric fever were recorded, against 14, 9, and 7 in the three preceding weeks.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily risen from 1418 to 2100 at the end of the seven preceding weeks, had further risen to 2125 on Saturday, August 2nd; 258 new cases were admitted during the week, against 315, 357, and 346 in the three preceding weeks. These hospitals also contained on August 2nd 891 cases of diphtheria, 274 of measles, 245 of whooping-cough, and 52 of enteric fever, but not one of small-pox. The 898 deaths from all causes in London were 20 fewer than the number in the previous week, and corresponded to an annual death-rate of 10·4 per 1000. The deaths referred to diseases of the respiratory system, which had been 137, 115, and 107 in the three preceding weeks, were 108, and were 3 above the number recorded in the corresponding week of last year.

Of the 3957 deaths from all causes in the 96 towns, 173 resulted from various forms of violence and 350 were the subject of coroners' inquests. The causes of 27, or 0·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 76 other smaller towns. Of the 27 uncertified causes of death, 5 were registered in Birmingham, 3 each in Stoke-on-Trent, in Liverpool, in St. Helens, and in Warrington, 2 in London, and 2 in Sheffield.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,259,600 persons at the middle of this year, 1144 births and 643 deaths were registered during the week ended Saturday, August 2nd. The annual rate of mortality in these towns, which had steadily declined from 14·9 to 13·1 per 1000 in the five preceding weeks, rose to 14 8 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 13 7, against 11·3 per 1000 in the 96 large English towns. Among the several towns the death-rates in the week under review ranged from 7·1 in Leith, 8·8 in Falkirk, and 8 9 in Perth, to 17·4 in Greenock, 19 9 in Ayr, and 20·3 in Hamilton.

The 643 deaths from all causes were 77 in excess of the number in the previous week, and included 61 which were referred to the principal epidemic diseases, against 61 and 64 in the two preceding weeks. Of these 61 deaths, 21 resulted from infantile diarrhœal diseases, 16 from measles, 14 from whooping-cough, 5 from scarlet fever, and 5 from diphtheria, but not one from enteric fever or from small-pox. These 61 deaths from the principal epidemic diseases corresponded to an annual death-rate of 1·4, against 1·3 per 1000 in the 96 large English towns. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 17, 13, and 24 in the three preceding weeks, slightly fell to 21 in the week under review, and included 12 in Glasgow, 3 in Edinburgh, and 2 in Paisley. The deaths referred to measles, which had declined from 38 to 18 in the four preceding weeks, further fell to 16, of which number 12 were recorded in Glasgow. The fatal cases of whooping-cough, which had been 16, 11, and 15 in the three preceding weeks, were 14, and included 10 in Glasgow. The 5 deaths attributed to scarlet fever were equal to the average in the earlier weeks of the quarter. Of the 5 deaths [illegible] Glasgow. A fatal [illegible] piratory system, [illegible] preceding weeks, rose to 83 in the week under notice; 28 deaths resulted from different torms of violence, against 23 and 31 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,199,180 persons at the middle of this year, 663 births and 381 deaths were registered during the week ended Saturday, August 2nd. The annual rate of mortality in these towns, which had been 15·5, 15·2, and 16·4 per 1000 in the three preceding weeks, further rose to 16·6 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these Irish towns averaged 16·0 per 1000; in the 96 large English towns the corresponding rate did not exceed 11·3 while in the 16 Scotch towns it was equal to 13 7 per 1000. The annual death-rate in the week under review was equal to 17·3 in Dublin (against 10·4 in London and 16·2 in Glasgow). 15 9 in Belfast, 25 8 in Cork, 19·1 in Londonderry, 8·1 in Limerick, and 22 8 in Waterford, while in the remaining 21 smaller towns the mean death-rate did not exceed 13 2 per 1000.

The 381 deaths from all causes were 3 in excess of the number in the previous week, and included 42 which were referred to the principal epidemic diseases, against 28 and 27 in the two preceding weeks. Of these 42 deaths, 28 resulted from infantile diarrhœal diseases, 8 from measles, 2 from scarlet fever, 2 from whooping-cough, 1 from enteric fever, and 1 from diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·8 per 1000; in the 96 large English towns the corresponding rate did not exceed 1·3, and in the 16 Scotch towns 1·4 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 15, 16, and 15 in the three precedings weeks, rose to 28 in the week under notice; of this number 13 occurred in Belfast and 11 in Dublin. The deaths referred to measles, which had been 4, 4, and 5 in the three preceding weeks, rose to 8, and comprised 4 in Londonderry, 2 in Belfast, and 2 in Waterford. The deaths from scarlet fever, from whooping-cough, and from diphtheria were registered in Belfast, and the fatal case of enteric fever in Dublin. A death from typhus was also recorded in Dublin.

The deaths referred to diseases of the respiratory system, which had been 52, 56, and 41 in the three preceding weeks, were 42 in the week under notice. Of the 381 deaths from all causes, 104, or 27 per cent., occurred in public institutions, and 13 resulted from different forms of violence. The causes of 7, or 1·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death in the week under notice did not exceed 0·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Fleet-Surgeon Francis Herbert Aylen Clayton has been placed on the Retired List at his own request (dated July 30th, 1913).

In accordance with the provisions of His late Majesty's Order in Council of August 11th, 1903, Surgeon Edward James Hamilton Garstin has been allowed to withdraw from His Majesty's Naval Service with a gratuity.

Surgeon John Bourdas has been advanced to the rank of Staff-Surgeon in His Majesty's Fleet (dated August 10th, 1913).

The following appointments have been notified:—Fleet-Surgeons: J. W. W. Stanton to Haslar Hospital for instruction of Acting Surgeons; L. Kilroy to the *Colossus;* W. K. Hopkins to the *Vivid*, additional, for trials of *Fearless;* E. Sutton to the *President*, additional, for London Recruiting Headquarters, temporary; J. C. Durston to the *Defence;* C. H. J. Robinson to the *Dartmouth;* and H. F. Iliewicz to the *Hercules*, all on recommissioning. G. Gibson to the *Indomitable*; H. S. Burniston to the *Warrior*; E. S. Miller to the *Antrim*; H. Spicer to the *Invincible*; and W. B. Macleod to the *Cornwallis.* Staff-Surgeons: J. Fullarton to the *Patrol*, on commissioning; J. O'Hea and A. G. Eastment, both to the *Hermes*, additional for Isle of Grain Flying Station and Calshot Flying Station respectively; S. H. Facey to the *Irresistible;* J. McA. Holmes to the *Achilles*; and W. T. Haydon to the *Virid*, additional, for disposal. Surgeons: J. S. Ward to the *Defence* and E. P. G. Gauston to the *Hercules*, both on recommissioning; G. T. Verry to the *Vernon;* A. G. Malcolm to the *Alecto;* and A. E. Malone to the *Vivid*, additional; P. B. Egan to the *Invincible;* A. R. Price to the *Indomitable*; J. P. Berry to the *Virid*, additional, temporary; and J. G. Danson to the *Warrior.*

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. F. Donegan, medical officer in charge of the Royal Dockyard at Woolwich, has been placed under orders for a tour of duty with the Southern Army in India. Lieutenant-Colonel S. Glenn Allen has arrived home on leave of absence from Gibraltar. Lieutenant-Colonel A. A. Sutton, D.S.O., Commandant at the Royal Army Medical Corps Camp of Instruction at Longmoor, has been appointed to command No. 1 Clearing Hospital at the Aldershot Command Medical Manœuvres. Lieutenant-Colonel G. F. H. Marks has been transferred from Ferozepore Cantonment to Dalhousie and appointed to hold charge of the Military Hospital. Lieutenant-Colonel C. A. Stone, at present holding charge of the Military Hospital at Parkhurst, has been appointed to command No. 2 Field Ambulance at manœuvres.

Major E. A. Bourke has been transferred from the Military Hospital at Chester to Carlisle. Major J. H. Brunskill has taken up duty as Specialist Sanitary Officer to the Dublin District. Major A. R. O'Flaherty has been appointed to the Military Hospital at Kasauli on transfer from Ambala Cantonment. Major C. E. Fleming has taken up duty at the Military Hospital, Pretoria. Major J. H. R. Bond has been appointed to hold charge of the Military Hospital at Naini Tal cantonment. Major A. Chopping has been transferred from the Royal Herbert Hospital at Woolwich to the Royal Victoria Hospital at Netley and appointed Registrar. Major C. J. O'Gorman has been granted five months' leave of absence home from India on medical certificate. Major J. Matthews has been appointed to the Military Hospital at Secunderabad. Major G. W. Tate, Medical Inspector of Recruits in the Irish Command, has been placed under orders for a tour of duty in Bermuda. Major H. M. Morton has arrived home for duty from South Africa, tour expired. Major S. A. Archer has arrived home on leave of absence from the Military Hospital at Jullundur Cantonment. Major S. W. Sweetnam has been granted eight months' leave of absence home from India, with permission to revert to the Home Establishment on its completion. Major F. W. Lambelle has taken up duty at Maymyo as Specialist in Operative Surgery to the Burma Division. Major F. E. Rowan Robinson has been appointed to hold charge of the Military Hospital at St. George's, Bermuda. Major J. C. B. Statham has taken up duty as Specialist Sanitary Officer to the Sierra Leone Protectorate.

Captain G. E. Ferguson has been appointed to the Northern Command. Captain G. W. G. Hughes has been selected for appointment as Specialist in Ophthalmology to the Devonport District, in succession to Major E. E. Parkes, whose tenure of the appointment has expired. Captain D. de C. O'Grady has been transferred from Rawal Pindi to Barian. Captain V. H. Symons has been appointed to the Western Command. Captain J. E. Powell has been selected for appointment as Specialist in Dermatology and Venereal Diseases at Hilsea. Captain W. McD. MacDowall has been placed under orders for a tour of duty in Jamaica. Captain R. G. Anderson has been appointed to the Fourth-class Order of the Medjidieh by H.H. the Khedive of Egypt in recognition of valuable services. Major A. McMunn has arrived home from the Military Hospital at Hong-Kong on leave of absence. Captain J. H. Campbell has been appointed to the Scottish Command. Captain R. C. Sidgwick has been selected for appointment as Specialist in Operative Surgery at the Royal Herbert Hospital, Woolwich. Captain H. M. J. Perry has taken up duty at Devonport. Captain T. W. O. Sexton has been appointed to Woolwich. Captain W. J. E. Bell has been appointed for duty at the Queen Alexandra Hospital, Grosvenor-road, S.W. Captain J. W. Lane has been granted six months' leave of absence home from India. Captain R. C. Paris has been appointed Specialist in Dermatology and Venereal Diseases to the Fourth (Quetta) Division of the Southern Army in India. Captain A. W. Byrne has been appointed to the Central Research Institute in Kasauli. Captain W. Mitchell has been transferred from Ambala Cantonment to Subathu Captain J. E. M. Boyd has been permitted to extend his Indian tour of service for one year further.

Lieutenant W. J. Webster has been placed under orders for a tour of duty in Malta. Lieutenant C. C. Jones has been appointed to the Queen Alexandra Military Hospital at Grovenor-road, S.W. Lieutenant E. G. S. Cane has been transferred from the Military Hospital at Poona Cantonment to Colaba, Bombay. Lieutenant C. M. Finny has left the Dublin District for service in India. Lieutenant L. Dunbar has been appointed to the Southern Command. Lieutenant J. E. Hepper has been transferred from the Military Hospital at Tidworth to Salisbury Plain and appointed to hold medical charge at Fargo Camp. Lieutenant B. H. H. Spence has been placed under orders to embark for a tour of service in India on Dec. 11th. Lieutenant T. H. Balfour has taken up duty at Fort George, on transfer from the Military Hospital at Edinburgh.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel J. G. Hojel has been selected for appointment as officiating Health Officer of the Port of Bombay, in succession to Lieutenant-Colonel J. Cammin, V.C., C.I.E., granted leave of absence. Lieutenant-Colonel

E R Parry, Superintendent of the Central Jail at Midapore, has been appointed to hold charge of the duties of Civil Surgeon to the Midapore District Lieutenant Colonel R H
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services

Major V H Roberts has been appointed Civil Surgeon to the Chhindwara District Major A G McKendrick has been granted leave of absence combined with furlough home from India for two years Major W V Coppinger has been selected for appointment as Civil Surgeon at Dibrugarh, Assam, in succession to Major A Leventon Major H R Nutt has been confirmed in his apointment as Second Class Civil Surgeon by the Government of India in succession to Lieutenant Colonel J M Caddell, retired Major H J Walton has been granted privilege leave of absence for two months and 25 days Major H M Cruddas has arrived home on leave of absence from India Major P St C More has been appointed Civil Surgeon at Sialkot

Captain A G Presidder has been selected for appointment as Medical Officer to the 87th Regiment of Punjabis Captain H E Stranger Leathes has been granted eight months leave of absence home from India Captain A W Howlett, officiating civil surgeon at Mussooree, has been transferred to Bareilly and appointed to officiate as Superintendent of the Central Prison, in succession to Captain W P G Williams Captain E T Harris has been transferred from Mogok to Bassein and appointed Civil Surgeon Captain J L C Little has been granted an extension of his leave of absence home from India for a further six months on medical certificate The services of Captain W L Forsyth have been placed at the disposal of the Government of Madras Presidency for employment in the Jail Department Captain W T Finlayson, Superintendent of the Borstal Central Jail at Lahore has been granted two years furlough The services of Captain C H Barber have been replaced at the disposal of H E the Commander in Chief in India Captain R D Saigol has arrived home on leave of absence from India

Territorial Force

Royal Army Medical Corps

Lieutenant Colonel Thomas Robinson Glynn, 1st Western General Hospital Royal Army Medical Corps, is appointed to the Honorary Colonelcy of the Royal Army Medical Corps Territorial Force of the West Lancashire Territorial Division, vice Honorary Colonel Richard Caton, who is retired on completion of the tenure of his appointment

1st London (City of London) Field Ambulance, Royal Army Medical Corps Lieutenant Duncan C L Fitzwilliams to be Captain (dated July 3rd 1913)

4th London Field Ambulance, Royal Army Medical Corps Lieutenant Alfred John Williamson, from the 1st Highland Field Ambulance Royal Army Medical Corps to be Lieutenant (dated June 19th 1913)

1st North Midland Field Ambulance, Royal Army Medical Corps Captain James D Allen resigns his commission (dated August 9th 1913)

1st Northern General Hospital Royal Army Medical Corps William Frank Wilson to be Captain, whose services will be available on mobilisation (dated August 9th, 1913)

ficers resign their commissions
Captain Charles G Watson and
l The promotion to a Captaincy
aylor is antedated to April 1st,
1908

Attached to Units other than Medical Units —Lieutenant Percy B Spurgin to be Captain (dated May 16th 1913) Captain Mark P M Collier resigns his commission (dated August 9th, 1913)

Special Reserve of Officers

Royal Army Medical Corps

Lieutenant Philip W Mathew to be Captain (dated June 30th 1913).

The undermentioned to be Lieutenants (on probation) Frederick Livingstone Tulloch late Cadet Lance Sergeant, Edinburgh University Contingent, Officers Training Corps (dated June 16th 1913) Cadet Staff Sergeant Thomas William Edward Elliott from the Belfast University Contingent, Officers Training Corps (dated July 7th, 1913)

The Grand Priory of the Order of the Hospital of St John of Jerusalem in England

The King has sanctioned the following promotions in and appointments to the Order of the Hospital of St John of Jerusalem in England —Major Henry Brydges Yates (from Esquire) and Lieutenant-Colonel Sydney Monckton Copeman F R S (from Honorary Associate) as Knights of Grace, and Major Francis Leonard Vaux, A M C (Canada), and Lieutenant Colonel John Taylor Fotheringham, A M C (Canada) as Esquires

Journal of the Royal Army Medical Corps

The first article in the August issue of this journal is a reprint *from the Proceedings of the Royal Society of a com*munication on Further Researches on the Extrusion of Granules by Trypanosomes and on their Further Development, by Major W B Fry and Captain H S Ranken Mr H G Plimmer F R S, adds a note on a new method of blood fixation In an article by Dr M S Pembrey on Heat Stroke a tribute is paid to the valuable observations which have been made on this subject by medical officers of the British Army, *for their* introduction of the most practical and efficient treatment and for a general recognition of external heat as the important factor The enormous *success of* bacteriology in recent years, he says, may, however, lead to the acceptance on insufficient grounds of the view that "heat stroke' is a specific fever and ' the time, therefore, has come for conclusive observa*tions and experiments to decide between the rival theories* and thus enable preventative measures and treatment to be based upon scientific evidence and to be strictly enforced to prevent the toll which as death disease, and inefficiency is year by year exacted by heat stroke'' Under the title of
Colonel R H
speculations
Taking as his
s a world in
which the law of ca
happens by chance,
in the existence of
tion that its operations are by and through physical agencies His arguments bring him to the conclusion that mind and matter are not antithetical but rather part of one great universe of substance, and that heat light, and magnetism are mere modes of and definitely connected with the æther or soul of substance and he asks whether it is too much to assume that when the nature of æther is better understood the mechanism of so-called occult phenomena may not be plain to us Conceding so much, the possible explanation of leviation and the tying of knots in an endless cord seem to become mere child s play if we bring to that explanation the aid of the fourth dimension As an interesting speculation bearing on the problem as to whether the human soul is but a name for the sum of vital functions or has an objective existence, embodied and disembodied and as a stimulus to thought Colonel Firth s article may be commended Professor Leonard Hill s lecture on the Physiology of the Open air Treatment, which was published in THE LANCET of May 10th, also appears in this issue

PARIS

(From our own Correspondent)

Canine Tuberculosis

ON July 29th M Cadiot, a professor at the school of Alfort, related before the Academy of Medicine the history of a case of tuberculosis in the dog introducing many curious details full of interest both from the point of view of comparative pathology and from that of public hygiene He showed that tuberculosis in the dog is almost always of human origin, being especially found in animals belonging to those afflicted with pulmonary phthisis or dwelling in places infected by them In Paris as in all thickly populated communities the clinical morbidity of tuberculosis in the dog is from 3 to 4 per cent about three times as great as in the cat and at least 500 times as great as in the horse
tremely common n dogs
He als
which
cafés,
generally saturated with bacilliferous sputa which suggests

that man himself may be also exposed to danger therein. Undoubtedly too the dog, which very generally contracts tuberculosis from man, may also convey it to him when the subject of open lesions, though it will not do to exaggerate either the frequency or the risk of this possibility. It is not so disquieting a fact as has been said; all that is necessary is to be aware of it. As yet canine tuberculosis is not extremely widely disseminated. The danger of its transmission thus to human beings is in fact rare, and almost negligible in comparison with transmission through human contagion.

The Effect of Meat on the Nutrition of Diabetics.

The action of meat in diabetics without loss of flesh has given rise to a very interesting discussion at the Société Médicale des Hôpitaux between M. Marcel Labbé and M. Rathery. Most authors hold that meat has an influence on the glycosuria of diabetics. This action is especially noticable in the grave forms of diabetes, but it exists also in benign ones. The case was reported of a diabetic excreting 13 grammes of sugar in whom the cutting off of meat caused a cessation of the glycosuria, whilst the ingesting of 200 grammes of meat brought back the glycosuria to its former extent. The glycosuria induced by the taking of meat never reaches very high figures and is in no wise comparable to that due to carbohydrates. In contradistinction to the opinions of M. Linossier and M. Lemoine both M. Labbé and M. Rathery conclude that meat has an influence on the glycosuria of diabetics without emaciation, but that this influence is neither constant nor regular, and that in practice it is not comparable to that of the carbohydrates. The restriction of carbohydrates remains, therefore, the keystone in the regimen of diabetics. The action of meat on the glycosuria of diabetics is explained by the contained glycogen, and especially by the carbohydrate products of protein metabolism.

A Prize for Research on Rheumatism.

A prize of 5000 francs has been put at the disposition of the *Matin* by an anonymous donor for the author of the investigations that shall be adjudged most greatly to advance our knowledge of the causative microbic factor in rheumatism, the essays to be sent in to that journal before Jan. 1st, 1914. The composition of the board of adjudication, which will consist entirely of medical men, is left to the *Matin*. The conditions of the competition will be laid down by the board.

The Agrégation.

Regulations respecting the transference from one faculty to another of *agrégés* in a faculty of medicine or a mixed faculty of medicine and pharmacy have been published. A vacancy occurring for an *agrégé* is published in the official journal. A compulsory delay of a month is then accorded, during which any *agrégé* is at liberty to apply for transference, but no such application will be accepted after the Ministerial decree announcing the concours for the vacancy has been published. The transference is announced by the Minister on the advice of the faculty to which the *agrégé* desires to become attached and of the Commission of Medicine and Pharmacy of the Consultative Committee of Public Instruction.

A Wound of the Spinal Cord.

On July 23rd at the Société de Chirurgie M. Potherat related the case of a young girl who had shot herself with a pistol. The bullet had penetrated the abdomen. He performed laparotomy and found considerable hæmorrhage from a wound of the lower surface of the liver, which he plugged with a tampon. There was also a small orifice in the lesser omentum, but as the bleeding had stopped M. Potherat did not interfere further. The next day the patient had total paraplegia, with paralysis of the bladder and rectum, and radioscopy showed the ball situated in the spinal canal at the level of the eleventh dorsal vertebra. As there was considerable wasting of the lower limbs and a trophic ulcer was found, he removed the arch of the eleventh dorsal vertebra and incised the dura mater in the region of a small ecchymotic patch of the width of some millimetres. The ball was found right in the centre of the cord. The operation is yet too recent for the ultimate result to be known.

The Association d'Enseignement Médical.

A series of conferences on various subjects in medicine, surgery, and the specialties will be held by the Association d'Enseignement Médical des Hôpitaux de Paris from Oct. 15th to 31st in the Hôpital de la Charité, Amphithéâtre Potain, Paris. Those announced to take part are Dr. Lucas-Championnière, Dr. Bensaude, Dr. Thibierge, Professor Broca, Dr. Michon, Dr. Rudaux, Dr. Ribadeau-Dumas, Dr. Poulard, Dr. Béclère, Dr. Courcoux, Dr. Labey, Dr. Sergent, Dr. Josué, Dr. Robineau, Dr. Hudelo, Dr. Lesné, Dr. P. E. Weil, Dr. Bazy, Dr. Roubinovitch, Dr. Savariaud, Dr. Queyrat, Dr. Le Noir, and Dr. Rist.

August 11th.

Correspondence.

"Audi alteram partem."

WEST HAM MEDICAL INSPECTORS: TEMPORARY ASSISTANTS.

To the Editor of The Lancet.

Sir,—To prospective candidates for the above appointments I would offer the following information. Medical inspectors in West Ham have no status as assistants to the medical officer of health, and no medical inspector has ever *been permitted to do any public health work, either* in the schools or in the borough (population 310,000). And when the medical officer of health leaves the borough, either on holiday or otherwise, no assistant or deputy is left; the public health work is done by means of the Post Office and clerks. They are not permitted to do any refraction work. They simply select the cases, which are sent to a general practitioner called the oculist, who has a lucrative practice, and who gets 4*s.* per head for his eye work. The medical inspectors are not permitted to examine any mentally deficient or defective child referred as a special case during medical inspection by the teachers. Such cases are assigned by the medical officer of health to the care of a lay inspectress; and should such a case come under review as a routine examinee and a report be made on it to the medical officer of health it would still be relegated to the care of the lay inspectress. Through not being called assistant medical officer of health, one of my former colleagues lost a sure post as a medical officer of health. Up to the present West Ham is a very blind alley for medical inspectors. Verbal promises made at the beginning have not so far materialised. Two other more important points are likely to be taken from the medical inspectors, and when that takes place they will have reached the level of "superior office boys." But on the strength of the subjoined quotation such a step will be met by a strong representation to the Board of Education and a question in the House.

The quotation to which I refer appeared in a letter from the Board of Education to the London Education Committee, which was referred to in a full report which appeared in The Lancet of August 2nd, p. 339. "The Board also suggest that the Council should consider the possibility of extending the functions of the assistant medical officers. There is a serious danger that unless more variety is introduced into their work the restriction of their duties in practice largely to routine medical inspection, re-examinations, and special examinations will have an injurious influence on the work generally."

Medical inspectors are simply tolerated by medical officers of health, and unless they take a firm stand now they will soon occupy a subordinate and unwarranted position in their profession.

Neither the Public Health Committee nor the Education Committee is to blame for the above state of affairs in West Ham.

I am, Sir, yours faithfully,

West Ham, August 7th, 1913. Alex. Graham.

THE LADIES' PLATE AT HENLEY REGATTA.

To the Editor of The Lancet.

Sir,—While acknowledging my indebtedness to Dr. Adolphe Abrahams for his criticism, I should like to state that the brevity of my former letter probably placed me at a disadvantage in the full expression of my views, which are almost in complete accord with his own.

For 40 years I have held a brief for athletics both for boys and men, realising that both in the preparation for, and performance of, athletic competitions the gain is enormous both on physical and mental grounds I ask for no "grand motherly legislation' with regard to schoolboys, let them *compete* by all means, but *compete on fair and equal* grounds, and let those who have the regulations of their athletics lend an open ear to the expert opinion of competent medical men, especially of those among us who have taken an oar at Henley, and who (as expressed in Dr Abrahams' very able letter) have felt from experience that in the race "death" itself would seem preferable to the indescribable disgrace of stopping Of such stuff is our English manhood made, but in all fairness let the race be equal, and is it fair to place growing boys in open competition with full-grown men, when from obvious physiological and medical reasons the former are unfit?

Better let "Eton, Radley, Bedford, and Shrewsbury scoff" than sap the vitality of the nation by ruining her sons It is the unequal yoke inhibited on the best authority long ago against which I protest, for rowing in competition, as is well known by all Old Blues, is far more severe than any other form of sport As a proof of my opinion I may state that I had this year the good fortune offered me of testing this fact through the kind assistance of a recognised authority in the rowing world

My letter is too long, but to sum up my suggestions are for —Approximate equality in age in competitive athletics (specially in rowing) and competent medical supervision in training I am, Sir, yours faithfully,

SHEPHERD BOYD, F R C S Irel,
Harrogate August 7th, 1913 Leander Rowing Club

IMMUNISATIONS FOR RHEUMATIC INFECTIONS

To the Editor of THE LANCET

SIR,—In THE LANCET of August 2nd you quote me as having made the following statement during the discussion on Dr A P Luff s paper on Fibrositis at the British Medical Association—viz, that I said (1) ' Excess of uric acid was a causative agent", and that (2) " uric acid interfered with the effective action of salicylates ' What I said was that it was necessary, when immunising for rheumatic infections to correct the acidosis which was frequently present, as anti bodies did not act properly if there was any reduction of the normal alkalinity of the blood and tissue fluids and that for this purpose I used citrate of soda

I am, Sir, yours faithfully,
Dublin August 3rd 1913 W M CROFTON

A SCALE OF FEES

To the Editor of THE LANCET

SIR,—I am instructed to draw your attention, as a matter of general interest to the readers of THE LANCET to the undermentioned scale adopted by the London County Council in respect of payments to doctors for the first attendance to pupils, scholars, or students who meet with accidents at *educational institutions maintained by the Council, or to* children who meet with accidents at dining centres in the administrative county of London —

	s	*d*
1 Where a child pupil scholar, or student is taken to a doctor's surgery	3	6
2 Where a doctor attends a child pupil scholar, or student	5	0

In exceptional circumstances claims in excess of the fees specified are specially considered I should add that the regulation does not apply to residential schools maintained by the Council

I am, Sir, your obedient servant,
JAMES BIRD,
Deputy Clerk of the Council
County Hall Spring Gardens S W August 5th, 1913

A CORRECTION.

To the Editor of THE LANCET

SIR,—May I correct a statement attributed to me in the necessarily abbreviated report of the discussion on fibrositis at the recent meeting of the British Medical Association at Brighton in THE LANCET of August 2nd, p 295 I drew no distinction about toxins, but the really important point seemed to me to be whether fibrositis is due (1) to many and varied organisms, just as pleurisy is; or (2) to one *specific organism, or (3) to perverted metabolism, which is* unlikely

In brachial neuritis certain fixed spots nearly always become tender I suggested, too salicylic acid in lanoline, not salicylate ointment, to which the skin is probably impervious I am, Sir, yours faithfully,
Clifton Bristol G PARKER

TUBERCULOSIS OFFICERS

To the Editor of THE LANCET

SIR —This is a very egotistical letter, yet one probably with bearings both topical and important Nine years is the length of my special tuberculosis experience, the last five of them in sole resident charge of a 50 bed public sanatorium, I am under 40, a motor cyclist a D P H, and have excellent testimonials So I put in for a chief tuberculosis officership about 20 miles away I know my application did not miscarry by the fact that in a week or so our county medical officer of health wrote me a very kind letter saying that his *confrere* of the area (X) in question had made inquiries of him about me, and that he had given a hearty recommendation But the first news I had of the result of the election was a note from a local doctor asking that he and Dr Z, the chief tuberculosis officer of X, might call and "get some hints" According to my 1910 Medical Directory the said Dr Z had no tuberculosis experience and no public health diploma Well, they called I had a "refill" of an artificial pneumothorax case fixed for that afternoon and Dr Z was very glad to see his first case and some of the literature There was an interesting throat case in This phthisiologist tried to put on the head mirror the wrong way up, and after the error was corrected gave up the attempt at inspection without getting as far as making the patient open his mouth A copy of the *Internationales Centralblatt f d gesamte Tuberkulose Forschung* was new to him So was Schroder and Blumenfeld s exhaustive work on the treatment of consumption In fact, he did not read German, and seemed not too familiar with the title of the translation of Bandelier and Roepke s work on tuberculin He asked me for my impressions of this last and as the book had a year or two ago been sent me for review I was able to give them Yet he gets the post of, to quote the advertisement, "expert adviser of the County Insurance Committee in regard to the diagnosis and treatment of cases of tuberculosis'—in spite, too of the fact that he has had no sanatorium experience, which the same advertisement stipulated for—and I do not get on to the short list or even have my application acknowledged

I believe there are others in my plight, it is in our name that I write When successful candidates of the above description visit our institutions it is easy enough, at the cost of a (I hope) quite minimal infraction of the laws of hospitality, for us to indulge ourselves in what a clever journalist called "the priceless luxury of *intellectual contempt* ' We would rather, however, have £500 a year for work we are fond of and which we have taken constant trouble to make ourselves competent in If denied this, what chance is there of harmonious working with duffers to whom it is proposed to give a sort of suzerainty over us unless, as is probable, they take care to sing *small?*

I enclose my card, but, of course, do not desire the publication of my name

I am, Sir, yours faithfully,
August 3rd, 1913 LONG LISTER

UNIVERSITY OF LIVERPOOL —Dr W. C McC Lewis, having been appointed to the chair of physical chemistry in the University of Liverpool, has resigned his office in connexion with the Department of Chemistry at University College Dr Roland Edgar Slade has been elected to succeed him —Dr A J Clark, assistant in the department of pharmacology at University College, Liverpool, has been appointed lecturer in pharmacology at Guy s Hospital Medical School

Medical News.

UNIVERSITY OF OXFORD.—The following candidates have been approved for the Diploma in Ophthalmology:—

Harriet R. D. Ford, David Horgan, K. N. Karanjia, G. C. L. Kerans, G. H. Oliver, D. D. Paton, and A. C. Reid.

UNIVERSITY OF LONDON.—At examinations held in July the following candidates were successful:—

FIRST EXAMINATION FOR MEDICAL DEGREES.

Gustave Adler, London Hospital; Roy Douglas Aylward, Tonbridge School and London Hospital; Santiago Ernesto Barraza, University College; Maung Ba Thin, Guy's Hospital; John Churchill Blake, University College; Harold John Blampied, St. Thomas's Hospital; Joseph Erwin Adolphe Bouchaud and Geoffrey Bourne, St. Bartholomew's Hospital; *†Norman Jesse Boxall, Epsom College; Charles Hargreaves Bracewell, University of Liverpool; Henry Walter Breese, Birkbeck College; Cyril Huleatt Brew, University College; Reginald Bertram Britton, University of Bristol; Elsie Charlotte Bulley, University of Liverpool; Ellinor Marjorie Burnett, Hartley [illegible]cis Caldecott and Donald Cameron, [illegible] llard Churcher, City of London School; [illegible] Churchill, St. Bartholomew's Hospital; [illegible] Clark, St. Thomas's Hospital; Apollo John Cokkinis, St. Mary's Hospital; Eric Vere Corry, Epsom College; William Adlington Date, Epsom College and University Tutorial College; Charles Owen Davies, University College, Aberystwyth; George Vincent Davies, Epsom College; Edwin Frank Deacon, Guy's Hospital; Phyllis Decima Dixon, London (Royal Free Hospital) School of Medicine for Women; Howard Lexster Douglas, London Hospital; Monte Edwards, St. Thomas's [illegible] University of Bristol; Grace [illegible] Hospital) School of Medicine [illegible] ersity College; Louis Alfred [illegible] Bartholomew's Hospital; [illegible] College; Nannie Gibson and [illegible] Hospital) School of Medicine for Women; Ernest Howard Glenny, St. Bartholomew's Hospital; Henry Gluckman, London Hospital; *Eryl Glynne, University College, Bangor; Alice Muriel Griffiths, University College, Cardiff; Herbert Glynn Hall, University College; Joan Hardy, London (Royal Free Hospital) School of Medicine for Women; Cecil Gordon Harper, Middlesex Hospital; Leslie William Hefferman, Epsom College; Bertha Hinde, University Tutorial College; Eric Clark Hinde, Guy's Hospital; George Franklin Wise Howorth, Mercers' School and Middlesex Hospital; Naunton Reginald Jenkins, University College, Cardiff; Henry Cyril Conwy Joyce, St. Bartholomew's Hospital; Amy Margaret Kerr, London (Royal Free Hospital) School of Medicine for Women; John Isaie Kuhne, King's College; Felix Raoul Leblanc, Guy's Hospital; Lloyd Kirwood Ledger, St. Bartholomew's Hospital; Emily Catherine Lewis, London (Royal Free Hospital) School of Medicine for Women; Pao Tsang Liang, Mill Hill School and St. Bartholomew's Hospital; Gordon Parmiter Lindsay, Guy's Hospital: Alice Lloyd Lloyd-Williams, London (Royal Free Hospital) School of Medicine for Women; William Alexander Low, St. Thomas's Hospital; Kenneth McFadyean and Bruce Maclean, University College; Thomas Hawks McLeod, King's College; Bernard Gouldsmith Marshall, Epsom College; Charles Leslie Mason, St. Mary's Hospital and Epsom College; Farid Morcos, St. Mary's Hospital; Ernest Rudolf Dudley Nagel, St. Thomas's Hospital; Martin Herbert Oldershaw, University College; Alexander Edward Patrick Parker, William Ellis Endowed School and Birkbeck College; Arthur Edmund Beer Paul, University College; Eric Denholm Pridie, University of Liverpool; Henry Norman Pritchett, Guy's Hospital; William Russell Ranson, Epsom College; Olive Rendel, London (Royal Free Hospital) School of Medicine for Women; John Charles Ryder Richardson, St. Paul's School; Gabriel Francis Rodrigues, Madras Medical College and University College; Gwendolen Mary Rolfe, London (Royal Free Hospital) School of Medicine for Women; James Paterson Ross, St. Bartholomew's Hospital; Henry Rowan, University College; William Harris Royal, University of Bristol; Eleanor May Scarborough, London (Royal Free Hospital) School of Medicine for Women; Simeon Cyril Shaw, Birkbeck College; Montague Beavan Tench, Middlesex Hospital; Benjamin Thomas, Epsom College; Daniel Jenkin Thomas, B.Sc., private study; *John Herbert Thomas, University Tutorial College; George Edwin Tilsley, University of Bristol; Charles Maitland Titterton, St. Bartholomew's Hospital; Alfred Robert Tothill, King's College; Richard Wake Twining, Epsom College; Alfred James Usborne, private tuition and study; Richard Walters, London Hospital; Sydney Arthur Thomas Ware, St. Thomas's Hospital; Frederick William Arbuthnot Watt, London Hospital; Alfred C. S. [illegible] ege; Idwal Glynne Williams, [illegible] rver Woodhouse, King Edw[illegible] rene Yates, London (Royal [illegible] for Women; and Frank Young, Guy's Hospital.

* Distinction in Inorganic Chemistry. † Distinction in Physics.

SECOND EXAMINATION FOR MEDICAL DEGREES, PART I.

Organic and Applied Chemistry.—Girdhar Clement Agarwala, London Hospital; James Reid Banks, University College; Grace Mary Beaven, London (Royal Free Hospital) School of Medicine for Women; Herbert Frederic Gustave Berncastle, Guy's Hospital; Alethea Josephine Bolton, University College, Nottingham, and private study; Guy William John Bousfield, St. Thomas's Hospital; Octavius Cyril Carter, London Hospital; Philip Caro Leslie Carrier, Charing Cross Hospital; John D'Arcy Champney, University of Bristol; Percy Selwyn Clarke and Philip Nield Cook, St. Bartholomew's Hospital; Dorothy Trevor Daintree, London (Roy Free Hospital) School of Medicine for Women; Robert Ce Davenport, St. Bartholomew's Hospital; John Milton Dave University of Leeds; Andrew Norman M. Davidson, Kin College; George Day, St. Bartholomew's Hospital; Jam Daniel Dyson, Middlesex Hospital; Arthur William Fost Edmonds, Clarence Franklin Eminson, and Lionel Berna [illegible] bert Oliver Gunewardene, Ceyl [illegible] College; Iris Harding, Lond [illegible] Medicine for Women; Arth [illegible] Westminster Hospital; Graha [illegible] Blanche Aspasie M. Henderso [illegible] and University College; Willia [illegible] of Durham; Charles Arund [illegible] John Wilkinson Davis Hyd University College; Helen Ingleby, London (Royal Free Hospita School of Medicine for Women; Jack Joffe, Guy's Hospita Stewart Russell Johnston, University College; Vivian Emr [illegible] Harry Kirkpatric [illegible] an, Guy's Hospita [illegible] ard Eric Lightwoo [illegible] Marguerite Fran [illegible] London (Royal Fr [illegible] Malcolm Hen [illegible] Queen's Colleg [illegible] Thomas's Hospita Arthur Morford, St. Bartholomew's Hospital; Arthur Han Morris, University of Bristol; John James Murphy, Lond Hospital; Noel Olivier and Irene Grace Parsons, London (Roy Free Hospital) School of Medicine for Women; Eric Finch Peel University of Liverpool; Victor J. E. C. del S. Perez y Marra University College; Edwin Seymour Phillips, Guy's Hospital Bertram Henzell Pidcock, St. Bartholomew's Hospital; Syt Madeline Georgina Pratt, London (Royal Free Hospital) Scho of Medicine for Women; Thomas Dawson Pratt, University Leeds; Stephen Henry de Grave Pritchard, London Hospital Charles Nathaniel Read, King's Colle[illegible] (Royal Free Hospital) School of Medi[illegible] Riggall, University College; Henry [illegible] Mandell Shimberg, London Hospital; Ellen Sylk, London (Roy Free Hospital) School of Medicine for Women; Aubrey Leonar Telling, Leeds Technical School and private tuition; Arthur Anto Thiel, St. Bartholomew's Hospital; Norman Beattie Thomas, University College, Bangor; Ralph Edwin Stuart Webb, Middlesex Hospital; Arthur William Wells, London Hospital; Effie Adel Wharton, London (Royal Free Hospital) School of Medicine fo Women; Graham Selby Wilson, King's College; and Campbe Young, University College.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Corning, extraordinary professor of anatomy has been promoted to Ordinary Professor.—*Berlin:* Dr. Claus, laryngologist and otologist to the Rudolf Virchow Hospital, has been granted the title of Professor. Dr. His who was offered von Noorden's chair in Vienna, has decided to remain in Berlin. Dr. August von Wassermann has been nominated Director of the Kaiser Wilhelm Institute of Experimental Therapeutics now being built in Dahlem. Dr. Karl Stolte has been recognised as *privat-docent* of Children's Diseases, and Dr. Thomas as *privat-docent* of Medicine.—*Bonn:* Dr. Hans Hinselmann has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Breslau:* Dr. Erich Frank has been recognised as *privat-docent* of Medicine.—*Bucharest:* Dr. Brukner has been appointed to the chair of Histology.—*Budapest:* Dr. Karl Borszeky and Dr. Tiberius Verebelly, *privat-docenten* of surgery, have been granted the title of Extraordinary Professor. Dr. K. Lang has been recognised as *privat-docent* of Rhinology.—*Charlottenburg:* Dr. Ernst Barth, senior staff surgeon, has been appointed Municipal Laryngologist and Otologist.—*Clausenburg (Koloszvár):* Dr. Sigmund Jakabházy, *privat-docent*, has been promoted to the chair of Pharmacology.—*Cologne Academy of Practical Medicine:* Dr. Ewald H. Hering has been offered the chair of Physiology. Dr. Reiner Müller, of Kiel, has been offered the charge of the Institute of Hygiene and Bacteriology which is to be built.—*Copenhagen:* Dr. S. Monrad, lecturer on children's diseases, has been granted the title of Professor.—*Göttingen:* Dr. Löwe has been recognised as *privat-docent* of Pharmacology.—*Greifswald:* Dr. G. Schöne, *privat-docent* of surgery, and Dr. F. Cohn, *privat-docent* of midwifery, have been granted the title of Professor.—*Groningen:* Dr. J. van de Hoeve, of Utrecht, has been appointed to the chair of Ophthalmology.—*Innsbruck:* Dr. Felix von Werdt has been recognised as *privat-docent* of Pathological Anatomy.—*Jassy:* Dr. Dobrovici has been appointed to the chair of Internal Pathology.—*Jena:* Dr. Rudolf Eden has been recognised as *privat-docent* of Surgery.—*Königsberg:* Dr. Benthin has been recognised as *privat-docent* of Gynæcology.—*Leipsic:* Dr. Versé, *privat-docent* of pathological anatomy, has been appointed Extraordinary Professor.—*Lyons:* Dr. E. M. Martin, professeur agrégé, has been promoted to the chair of Forensic Medicine.

WEST LONDON POST-GRADUATE COLLEGE.—A short vacation course lasting three weeks will commence at this college on August 18th, the syllabus for the ensuing week being announced in the Diary of THE LANCET.

Dr. Henry Buchanan Murray, of Belfast, was admitted by the Right Hon. the Lord Mayor of Dublin a freeman of that city at a court held in the Dublin City Hall on July 8th.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).—The following scholarship and prizes have been awarded:—Senior scholarship and prize in diseases of children, Mr. C. F. Hacker; medicine prize, Mr. A. E. Panter; obstetric medicine prize, forensic medicine prize, and clinical surgery prize, Mr. F. H. Mosse; Todd prize and Tanner prize, Mr. E. W. Carrington.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.—The Baly medal of the College has been awarded to Dr. John Scott Haldane, F.R.S., reader in physiology at the University of Oxford. The award is made every other year to the person who shall have most distinguished himself in the science of physiology.—The Charles Murchison scholarship, which is awarded alternately by the University of Edinburgh and the Royal College of Physicians, has been awarded by the University to Dr. Alan William Stuart Sichel.

BRISTOL ROYAL INFIRMARY.—At the half-yearly meeting the chairman, Sir George White, in reporting progress for the preceding six months, referred to the great loss sustained by the city in the loss of Mr. J. S. Fry, the chairman of the General Hospital. The in-patients numbered 2490, an increase of 53 over [illegible] 1912, and the out-patients 2 [illegible] doubt due to the operation [illegible] The financial statement was not reassuring, the six months' income being £7716 and the expenditure £10,446. The chairman made his usual appeal for more subscribers, and mentioned that the Prince of Wales had sent a subscription of £10.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Experiments on Living Animals.

Mr. ELLIS GRIFFITH, Under Secretary for the Home Office, moved in the House of Commons on August 6th, an address for a return "showing the number of experiments on living animals during the year 1912, under licences granted under the Act 39 and 40 Vict. c. 77, distinguishing the nature of the experiments."

Two Scottish Bills.

Two Scottish Bills, the Mental Deficiency and Lunacy (Scotland) Bill and the Highlands and Islands (Medical Service) Bill, passed the third reading in the House of Commons on August 6th.

Public Health (Treatment of Disease) Bill.

The Public Health (Prevention and Treatment of Disease) Bill passed through Committee in the House of Commons on August 6th, and on August 7th was read the third time.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 6TH.

A Restricted Choice of Doctor.

Sir HENRY CRAIK asked the Secretary to the Treasury whether, in view of the fact that the choice of doctor was materially restricted in [illegible]

[illegible] arrangements which have been sanctioned for the provision of medical benefit to insured persons are inadequate, and I see no reason for instituting such an inquiry as is suggested by the honourable Member.

The Sight Tests of the Board of Trade.

[illegible] ade whether he [illegible] ritish Medical [illegible] no dissentient, [illegible] the Council of [illegible] the Board of [illegible] gently needed [illegible] ion; and, if so, [illegible] recommenda- [illegible] tement in the [illegible] The Board of Trade have, however, received no communication from the Association [illegible]

THURSDAY, AUGUST 7TH.

Vaccination Lymph.

Mr. LYNCH asked the President of the Local Government Board [illegible] by his department for vaccination pur- [illegible] living or dead, and whether the germs [illegible] whether any means existed by which [illegible] ascertained, or by which purity of the [illegible]

[illegible] germs of cow-pox and variola have not so far been identified; it is, [illegible] is probably aware, the Grocers' Company have offered a reward of £1000 for the discovery of the germ of small pox.

Inoculation Researches.

Mr. LYNCH also asked the President of the Local Government Board whether his attention had been called to recent researches on the [illegible]

[illegible] against [illegible] view of [illegible] hildren [illegible] at ques- [illegible] ourable Member says is correct.

Mr. LYNCH further asked the President of the Local Government Board whether, in view of the fact that in the cases of tuberculosis, [illegible] extent and virulence had been brought about by various agencies within control, notably by increased attention to sanitary systems, he would atta [illegible] public hea [illegible] lation as h [illegible] As at pre [illegible] system of [illegible] draw the [illegible] Local Gov [illegible] under cert [illegible]

[illegible] nine or ten years. The honourable Member almost suggests a few months.

Mr. **LYNCH**: I make no suggestions whatever. I simply repeat the results of Sir Almroth Wright's investigations.—Mr. **BURNS**: I think my honourable friend and I might beneficially enlighten ourselves during the holidays upon this rather technical subject.

Payments for Medical Treatment by an Insurance Committee.

Sir **FREDERICK LOW** asked the Secretary to the Treasury whether, seeing that the amount due to the Norwich Friendly Societies' Medical Institute for medical [illegible] &c., for the quarter ended April 11th, 1913 [illegible] the quarter ended July 12th, 1913, £692 6s. [illegible] 9d., and the only payments the institute had received were May 2nd £370 and July 9th £300, making in all £670, he would impress upon the Norwich Health Insurance Committee the necessity for the immediate discharge of the balance due to the institute and for greater promptitude of payments in the future in order that the institute might properly perform its responsibilities to the medical men and others attached to the institute, which had upwards of 6000 insured persons dependent upon it.—Mr. W. **BENN** (for the Secretary to the Treasury) replied: I do not know how my honourable friend has calculated the amounts which he refers to as due to the institution. Any payments made at the present time to approved institutions must be in the nature of advance payments only, and the amount of such advances must depend upon the expenditure actually incurred in the provision of medical attendance and treatment for insured persons. I understand that the Insurance Committee are prepared to make a further advance on receiving the necessary evidence of such expenditure.

Panel Doctors.

Mr. **HICKS BEACH** asked the Secretary to the Treasury how many insured persons had not yet selected their panel doctor, and when they would be allotted to the various doctors on the panel whose lists are not yet full.—Mr. W. **BENN** replied: I am unable at present to give the honourable Member the information asked for in the first part of the question. With regard to the latter part of the question, arrangements for allocation differ according to local circumstances, and no uniform date can be fixed, but arrangements have been made whereby any insured person can without delay obtain the services of a practitioner on the panel.

Mr. **HICKS BEACH** further asked the Secretary to the Treasury whether he was aware that many doctors had so far received no remuneration for their services as panel doctors for the quarter ending July 13th, and that many have still a considerable balance owing to them for the quarter ending April 13th; and what was the cause for this delay of payment of money due to them.—Mr. W. **BENN** replied: The honourable Member is under a misapprehension in thinking that a payment of a previously ascertainable amount is due at the end of each quarter of the calendar year to each doctor now on the panel. The regulations provide that the Insurance Committee shall make payments in advance at the end of each quarter of such amounts as may be agreed for this purpose between it and the doctors on the panel, but the precise amount actually due to any particular doctor can only be finally determined when all the various factors in the year's working of the Act have been ascertained and allowed for. I am not aware of any case in which advances have not been made in respect of both the first and the second quarter of this year.

Mr. **GWYNNE**: Will the hon [illegible] hether there is any standard fixed as to the [illegible] I do not know whether there is a standard. [illegible] the discretion of the Committee. If the honourable gentleman will give due notice I will ascertain.

MONDAY, AUGUST 11TH.

The Medical Staff of the Home Office.

Mr. **O'GRADY** asked the Secretary of State for the Home Department whether there was any intention of increasing the medical staff of the Factory Department to deal with industrial diseases; whether he would consider the necessity of appointing medical referees to diagnose and report upon injuries, serious and otherwise, in cases where the victims of accidents were too poor to pay legal and medical costs; and whether he could state the [illegible] nction with the [illegible] under the same. [illegible] ing added to the staff, making three medical inspectors in all. Medical men are also appointed under the Act and Regulations throughout the country for the purpose of examining children and young persons, inquiring into [illegible] nd examining workmen in certain [illegible] of these medical men is 2118. I do [illegible] id part of my honourable friend's [illegible] edings under the Compensation Act, [illegible] required by that Act to obtain any [illegible] f making a claim for compensation. A worker suffering from an industrial disease has to obtain a certificate from the certifying surgeon, but the fee is only 1s. in cases where the certifying surgeon gives the certificate on the result of the examination made by him in pursuance of his duties under the Factory Act, and 5s. in other cases; and if the worker is refused a certificate and appeals to the medical referee, the referee's fee is paid by the State. I have no evidence before me to show the need for any change in the system.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
Industrial Poisoning from Fumes, Gases, and Poisons of Manufacturing Processes. By Dr. J. Rambousek, Prague. Translated and edited by Thomas M. Legge, M.D., D.P.H. Price 12*s*. 6*d*. net.

ATKINSON, ROBERT, LIMITED, London.
Brazil in 1912. By J. C. Oakenfull. Price 5*s*. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
Epidemic Infantile Paralysis (Heine-Medin Disease). By Professor Paul H. Römer. Translated by H. Ridley Prentice, M.B., B.S. Lond., M.R.C.P. Price 7*s*. 6*d*. net.

BREWING TRADE REVIEW, 13, Little Trinity-lane, London, E.C.
Pr [illegible] t. The Application a [illegible] , and Wine Yeasts. [illegible] Translated by R. Gre [illegible] extended by the Autho
Price 5*s*. net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, a Melbourne.
The Student's Handbook of Gynæcology. By George Erne Hermann, M.B., F.R.C.P. Lond. Price 7*s*. 6*d*. net.
Common Diseases. By Woods Hutchinson, M.A., M.D. Pri 6*s*. net.

CHURCHILL, J. AND A., London.
Book for Mothers on the Management of Children in Health an Disease. By Mrs. A. M. Usher. With Introduction by Francis Rutter, M.D., F.R.C.S. Price 1*s*. net.
Obstetric Aphorisms for the Use of Students Commencing Mi wifery Practice. By Joseph Griffiths Swayne, M.D. Elevent edition, revised and edited by Walter Carless Swayne, M.D B.S. Lond., M.D., Ch.B. Bristol. Price 3*s*. 6*d*. net.
Dr. Chavasse's Advice to a Mother on the Management of He Children. Revised by T. D. Lister, M.D. Seventeenth autho rised edition. Price 1*s*. 6*d*. net.

CLIVE, W. B., UNIVERSITY TUTORIAL PRESS, LIMITED, London an Oxford.
Certificate Hygiene. Edited by Rev. A. W. Parry, M.A., B Sc Price 1*s*. 6*d*.

COLLINS, WILLIAM, SONS AND CO., LIMITED, London and Glasgow.
The Principles of Evolution. By Joseph McCabe. Price 1*s*. net.
The Feminist Movement. By Ethel Snowden. Price 1*s*. net.

CORNISH BROTHERS, Birmingham.
Contributions to Practical Medicine. By Sir James Sawyer, o London, Doctor of Medicine of University, Fellow of Royal College of Physicians. Fifth edition, with many revisions and additions. Price not stated.

EWART, SEYMOUR, AND CO., LIMITED, 12, Burleigh-street, Strand, London, W.C.
Protein and Nutrition. An Investigation. By Dr. M. Hindhede. Price 7*s*. 6*d*. net.

FUNK AND WAGNALLS COMPANY, New York and London.
The Heart and Blood-Vessels; their Care and Cure and the General Management of the Body. By I. H. Hirschfeld, M.D. Price $1.25 net.

GILL, GEORGE, AND SONS, London.
Home Health and Domestic Hygiene. By Sir John Collie, M.D., C.M., and C. F. Wightman, F.R.C.S. Price 9*d*. net.

GILL, L. UPCOTT, AND SON, LIMITED, London.
Beauty for Ashes. By Lady Henry Somerset. Price 5*s*. net.

GREVEL, H., AND CO., 33, King-street, Covent Garden, London, W.C.
Chemistry in Daily Life. Popular Lectures. By Dr. Lassar Cohn. Translated by M. M. Pattison Muir, M.A. Fifth edition, revised and augmented. Price 6*s*.

GRIFFIN, H. HEWITT, Putney.
Sports Management, including Motor Gymkhanas and Clocks Clockers and Clocking. By H. Hewitt Griffin, F.R.S S., M.J.I Price 1*s*. net.

HEALTH DEPARTMENT OF THE CITY OF NEW YORK.
Handbook of Information regarding the Routine Procedure of the Division of Communicable Diseases. By J. S. Billings, Junr., M.D. Price not stated.

HODGE, WILLIAM, AND COMPANY, Edinburgh and London.
Eugene Aram, His Life and Trial. By Eric R. Watson, LL.B. Price 5*s*. net.

HOUGHTON MIFFLIN COMPANY, Boston, Mass.
Calm Yourself. By George Lincoln Walton, M.D. Price not stated.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London.
Evolution by Coöperation. A Study in Bio economics. By Hermann Reinheimer. Price 3*s*. 6*d*. net.

KIMPTON, HENRY, London. STENHOUSE, ALEXANDER, Glasgow.
The Development of the Human Body. A Manual of Human Embryology. By J. Playfair McMurrich, A.M., Ph.D., LL D Fourth edition, revised and enlarged. Price 12*s*. 6*d*. net.

LAURIE, T. WERNER, LIMITED, London.
An Irish Gentleman, George Henry Moore. By Colonel Maurice George Moore, C.B., with a Preface by George Moore. Illustrated 16*s*. net.

LEWIS, H. K., London.
The Bradshaw Lecture on the Diagnosis and Treatment of Incipient Pulmonary Tuberculosis. Delivered before the Royal College of Physicians of London, Nov. 5th, 1912. By David Bridge Lees, M.D. Cantab., F.R.C.P. Lond. Price 5*s*. net.
The Place of Climatology i [illegible] the Samuel Hyde Memorial Lectures read [illegible] Balneology and Climatology of the Royal [illegible] ay 20th and 21st 1913. By William Gordo [illegible] F.R.C.P. Lond. Price 3*s*. 6*d*. net.

LONGMANS, GREEN, AND CO., London.
London Public Health Administration. A Summary showing Principal Authorities with their Origin, Services, and Powe By W. McC. Wanklyn, B.A. Cantab., D.P.H. Price 2*s*. 6*d*. net

MACMILLAN COMPANY, THE, New York.
A Laboratory Guide to the Study of Parasitology. By W. B Herms, University of California, Berkeley, California. Pri 3*s*. 6*d*. net.

Marlborough, E , and Co , London
Latin Self taught By John Topham, Barrister-at Law. Price, wrapper, 1s , cloth, 1s 6d

Methodist Publishing House, Singapore.
Or [illegible] Labour in the Tropics An [illegible] he Labour Code by courtesy [illegible] P. N Gerrard, B A., B.Ch , [illegible] D T.M H, Cambridge Uni [illegible]

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication*

Ash [illegible]

Ban [illegible]

Bri [illegible]
Manchester.

Briscoe, J. Charlton, M.D Lond , F.R C P Lond , has been appointed Lecturer on Practical Medicine at King's College Hospital Medical School.

[illegible]
School

Knox, Robert, M D , C M. Edin , has been appointed Teacher of [illegible]
School

Lyle, H Willoughby, M D., B S Lond , F.R C S Eng , has been appointed Lecturer on Practical Ophthalmology at King's College Hospital Medical School

O'Brien, M A A., L R C P. & S Irel , has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Fermoy District of the county of Cork

[illegible] been appointed Lecturer on Gynæcology at King's College Hospital Medical School, and Obstetric Physician to King's College Hospital

Ridge, P B , M B , B Ch R U I , has been appointed Lecturer on Morbid Anatomy and Histology and Curator of the Museum at [illegible]

Tunnicliffe, F. W , M D Lond , M R C P Lond , has been appointed Lecturer on Practical Medicine and Lecturer on Therapeutics and Applied Pharmacology at King's College Hospital Medical School

Wiltshire, H W., M D Lond , M R C P Lond , has been appointed Lecturer on Practical Medicine at King's College Hospital Medical School

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

Abergavenny, Monmouthshire Asylum —Second Assistant Medical Officer. Salary £225 per annum, with board, apartments, washing, and attendance

Banbury, Horton Infirmary—House Surgeon. Salary £100 per annum, with board and residence

Bedford County Hospital —Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry

Berkshire Education Committee —Assistant Medical Inspector of Schools Salary £300 per annum

Birkenhead Union Infirmary and Workhouse —Senior Resident Assistant Medical Officer Salary £150 per annum, with board, apartments, &c.

Birmingham and Midland Eye Hospital.—Third House Surgeon. Salary £80 per annum, with residence and board.

Birmingham General Dispensary —Resident Medical Officer, unmarried. Salary £220 per annum, with apartments, fire, light, and attendance.

Birmingham, University of.—Lecturer on Pathology and Bacteriology in University and Visiting Pathologist to General Hospital.

Bradford Children's Hospital —House Surgeon Salary £100 per annum.

Bradford Royal [illegible] ied. Salary £100 per annum [illegible] Also House Surgeon, unma [illegible] board, resi [illegible]

[illegible] geon. Salary at rate of £125 per [illegible] ashing

[illegible] Physician Salary at rate of £100 per annum, with apartments, board, and laundry

Bury St Edmunds, West Suffolk General Hospital.—Resident Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and laundry

Cambridge, Addenbrooke's Hospital —House Surgeon for six months Salary at rate of £100 per annum, with board, residence, and laundry

Cancer Hospital, Fulham road, S.W —House Surgeon for six months Salary £70 per annum

Canterbury Mental Hospital, Canterbury.—Assistant Medical Officer, unmarried Salary £160 per annum, with board, lodging, washing, and attendance

Cardiff, King Edward VII 's Hospital —House Surgeon for six months Salary at rate of £60 per annum, with board, residence, and laundry

Chester General Infirmary.—House Physician. Salary £90 per annum, with [illegible]

Chesterfield [illegible] Salary £90 p [illegible]

Colchester, [illegible] £80 per ann [illegible]

Coventry and [illegible] Surgeon, H [illegible] of former £150 per annum, and of two latter £110 and £100 per annum respectively, with residence, board, laundry, and attendance

Devonport, Royal Albert Hospital —Assistant House Surgeon, unmarried Salary at rate of £75 per annum, with board and laundry

Dorset County Council —Two Assistant County Medical Officers [illegible] , unmarried. [illegible] dical Officer. [illegible] Salary £400 [illegible]

Exminster, Devon County Asylum —Junior Assistant Medical Officer Salary £200 per annum, with quarters, board, and laundry.

Gateshead Dispensary.—Assistant Medical Officer. Salary £200 per annum

Gloucestershire County Council and Gloucester Corporation Joint Committee —Tuberculosis Medical Officer. Salary £500 per annum

Grimsby and District Hospital —*Senior House Surgeon* Salary £100 per annum Also Junior House Surgeon Salary £80 per [illegible]

Ha [illegible] unmarried. [illegible] ing

Ha [illegible] Wormwood [illegible] per annum, [illegible]

[illegible] Salary [illegible] V C — [illegible] with [illegible]

[illegible] terinary) Laboratory, [illegible] lso Pathologist. Salary [illegible]

[illegible] econd Assistant Resident [illegible] with apartments, board, and washing

Lanark, County [illegible] erculosis Officer and As [illegible] £300 per annum Dist [illegible] Officers and Assistant [illegible] £300 per annum

Leeds General In [illegible] Salary £50 per an [illegible]

Leicester Poor Law [illegible] Officer Salary [illegible] washing

Liverpool Royal Southern Hospital —Two House Physicians and [illegible] washing, &c

Manchester Children's Hospital, Pendlebury —Resident Officer, [illegible] for six months Salary at rate of £100 per annum [illegible] t School Medical [illegible] Medical Assistant. [illegible] d washing

Manchester Royal Eye Hospital.—Junior House Surgeon Salary £80 per annum, with residence, board, and washing.

Manchester Royal Infirmary —Medical Officer for six months Salary at rate of £100 per annum, with board and residence.

Manchester Workhouse, Crumpsall —Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with rations, apartments, washing, attendance, &c.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Senior House Surgeon. Salary at rate of £100 per annum for first six months and £120 per annum for second six months, with board, residence, and laundry.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £85 per annum, with board, residence, and laundry.

NEWCASTLE-UPON-TYNE DISPENSARY.—Visiting Medical Assistants. Salary £200 per annum.

NEWCASTLE-ON-TYNE HOSPITAL FOR SICK CHILDREN.—Junior Medical Officer. Salary £80 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE WORKHOUSE AND HOSPITAL.—Second Assistant Resident Medical Officer (female), unmarried. Salary at rate of £100 per annum, with apartments, rations, and washing.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, residence, and laundry.

NOTTS COUNTY COUNCIL.—Tuberculosis Officer. Salary £400 per annum.

OXFORD COUNTY ASYLUM, Littlemore, near Oxford.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physican for six months. Salary £75 per annum, with board, residence, and washing.

PRESTON, COUNTY ASYLUM, Whittingham, Lancs.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

RAINHILL, NEAR LIVERPOOL, COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, board, attendance, &c.

READING, ROYAL BERKSHIRE HOSPITAL.—Second House Surgeon. Salary at rate of £80 per annum, with lodging, board, and washing.

RICHMOND, SURREY, ROYAL HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with board and apartments.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five appointments.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £125 per annum.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon, Ophthalmic House Surgeon, and Ear and Throat House Surgeon for six months. Salaries £80, £70, and £70 per annum respectively, with board, residence, &c.

SHEFFIELD UNIVERSITY DEPARTMENT OF PATHOLOGY.—Junior Demonstrator [illegible]

SIDLAW SA[illegible] Salary £125.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Surgeon for six months. Salary at rate of £100 per annum, with rooms, board, and washing.

SOUTH SHIELDS, COUNTY BOROUGH OF.—Assistant Tuberculosis Medical Officer. Salary £300 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

SUNDERLAND ROYAL INFIRMARY.—House Physician. Salary £120 per annum, with board, residence, and laundry.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and attendance.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Senior House Surgeon. Salary at rate of £100 per annum. Also Junior House Physician. Salary at rate of £75 per annum.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coals, and attendance.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary at rate of £120 per annum, with board and lodging.

WIGAN COUNTY BOROUGH EDUCATION DEPARTMENT.—Assistant School Medical Officer. Salary £275 per annum.

WILTS COUNTY COUNCIL.—County School Dentist. Salary at rate of £250 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £125 per annum, with board, rooms, and laundry.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £120 per annum, with board, residence, and washing.

WORCESTERSHIRE COUNTY COUNCIL.—Assistant School Medical Officer. Salary £250 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Aberfeldy, in the county of Perth; at Boston, in the county of Lincoln; at Glenavy, in the county of Antrim; and at Pewsey, in the county of Wilts.

Births, Marriages, and Deaths.

BIRTHS.

UNWIN.—On August 4th, at Penn Hill, Yeovil, the wife of Harold R. Unwin, F.R.C.S. Eng., *of a son.*

MARRIAGES.

GEIKIE COBB—DE POIX.—On Tuesday, August 12th, at St. Edmund's, Bungay, Ivo Geikie Cobb, M.D., to Audrey, only daughter of Edmond Tyrel de Poix, J.P., and Mrs. de Poix, of Broome Place, Norfolk.

MACNISH—WILSON.—On August 11th, at All Souls, Langham-place, W., by the Rev. W. F. Scott, David MacNish, M.A., M.B., of Harley-street, W., to Margaret, widow of Herbert W. Wilson, of Liverpool.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET.

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub-Editor, and marked on the envelope "Students' Number Only."

THE TREATMENT OF RINGWORM OF THE SCALP BY DRUGS.

To the Editor of THE LANCET.

SIR,—The rapid cures of ringworm of the scalp, said to have been effected by means of drugs, reported from time to time in various medical journals, led me to make a careful trial of such methods, but so far my results have been far from encouraging. The following treatment was employed in connexion with about 50 cases of ringworm, as well as a few cases of favus. Before starting the treatment the head in each case was shaved and thoroughly cleansed. The drugs used were various preparations of iodine, mercury, soda, and carbolic acid; also acetic acid, turpentine, methylated spirit, and cyllin soft soap. They were used in various strengths and combinations, according to the effect on the scalp, some being very sensitive to certain drugs. The children attended the school clinic on an average of three times a week, when the various drugs were applied in a thorough manner by the school nurse, the head afterwards being covered by grease-proof paper, and the hair being kept short by shaving from time to time. In several cases the mothers carried on the treatment at home in a very thorough and painstaking manner, including epilation in some cases. In the majority of the cases the result of the first few applications was to remove all signs of scurf and give the diseased area a clean and healthy appearance, but on careful examination with a lens the characteristic "stubble-like" hairs could be seen, and on epilation the spores were plainly visible with the microscope; this condition remained in the great majority of cases for months, notwithstanding the treatment was continued with regularity and vigour. Moreover, if for any reason the treatment was discontinued for a short time, the diseased areas soon showed all the signs of typical ringworm.

From the above experience the treatment of ringworm of the scalp by drugs only appears to me to be useful in limiting the spread of the disease in the patient's scalp, and preventing it from being a source of infection to other children, but certainly did not bring about a cure.

In two cases of debilitated and neglected-looking children the first result of the treatment was to cause the disease to spread rapidly over the scalp, and in one case over the body, in a most alarming fashion, but the condition rapidly improved with the administration of tonics, cod liver oil, &c., combined with local treatment.

I am, Sir, yours faithfully,

Hastings, August 5th, 1913. O. POLHILL TURNER, D.P.H. Oxon.

PRIZES AT THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

Messrs. Burroughs, Wellcome, and Co. have the distinction, in connexion with their exhibit at the International Congress of Medicine, of obtaining in two of the sections the highest possible award from the International Jury. The prizes referred to are for products exhibited in Section No. 2, which includes pharmaceutical preparations, fine chemicals, and antiseptics; and in Section No. 5, which relates to serum-therapy, organotherapy, and bacteriology.—Messrs. John Ward, Limited, were awarded a gold medal for their display of invalid chairs, couches, and other specialities.—The Dongor Hygienic Company have been awarded a diploma and a silver medal.

FACTORY GIRLS' COUNTRY HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—Unless this Fund receives additional help we shall have to disappoint a large number, and the disappointment will occasion many tears. We ask that all who value their own holidays will help to avert this disappointment to those who so greatly need the benefit. The girls do their utmost towards the cost of their holiday, but they are too poor to have it without the help of such a Fund as this. We ask earnestly for contributions to be sent to the Chairman of the Executive Committee, the Rev. Edward Canney, St. Peter's Rectory, Saffron Hill, London, E.C., or to the London County and Westminster Bank, Holborn Circus Branch, E.C.

We are, Sir, yours obediently,

E. GARRETT ANDERSON, M.D. ROBERT F. HORTON.
BEATRICE B. TEMPLE. FRANK LLOYD.
NORFOLK. H. L. STEPNEY.
J. H. HERTZ (Chief Rabbi). HUBERT M. SOUTHWARK.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MON 30 A.M., 12 noon, lical and . Dunn: an: The

TUE

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12 noon, Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Mr. Bernstein: The Blood in Diagnosis.

THURSDAY.– 2 P.M., Operatic Dr. Bern

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. rapy. lwin: Ear. —Dr.

SATURDAY.— Dr. Davis: Operatior Harman: Diseases c l Anatomy of the Al nics. Mr. *Pardoe: Operations.*

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture. 11 A.M., Examination of Patients and Minor Operations.

TUESDAY.—10 A.M., Major Operations. 4 P.M., Class in Gynæcological Diagnosis.

WEDNESDAY.—10 A.M., Obstetrical Lecture. 11 A.M., Examination of Patients and Minor Operations.

THURSDAY.—10 A.M., Major Operations.

FRIDAY.—10 A.M., Gynæcological Lecture. 11 A.M., Examination of Patients and Minor Operations. 4 P.M., Class in Gynæcological Diagnosis.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial Staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1913, which was completed with the issue of June 28th, were given in THE LANCET of July 5th.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Aug. 13th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks.
Aug. 7	30·08	S.W.	...	105	68	54	53	58	Cloudy
" 8	29·95	S.W.	0·10	107	68	54	55	57	Cloudy
" 9	29·82	S.W.	...	98	65	54	54	56	Overcast
" 10	29·91	W.	...	117	69	53	55	59	Cloudy
" 11	29·94	S.W.	0·06	111	72	53	53	60	Overcast
" 12	30·07	N.	...	105	68	57	60	61	Overcast
" 13	30·15	W.	...	111	69	59	57	60	Cloudy

The following journals, magazines, &c., have been received:—Kurseisto, Medical Review, Dublin Journal of Medical Science, International Journal of Surgery, Clinique Ophthalmologique, American Journal of Medical Sciences, Monthly Encyclopædia, Pediatrics, Archives of Pediatrics, Il Policlinico, Indian Medical Journal, Annali di Medicina Navale e Coloniale, British Journal of Children's Diseases, St. George's Hospital Gazette, Journal of Mental Science, Ophthalmology, Bulletin of the Johns Hopkins Hospital, St. Paul Medical Journal.

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An Address

ON

TUBERCULIN TREATMENT:

GENERAL SURVEY.

Delivered before the Fifth Annual Conference of the National Association for the Prevention of Consumption and other Forms of Tuberculosis

BY HECTOR MACKENZIE, M.D. CANTAB., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE BROMPTON HOSPITAL FOR CONSUMPTION; PHYSICIAN TO ST. THOMAS'S HOSPITAL.

LADIES AND GENTLEMEN,—The task which lies before me to give a brief summary of what is known about tuberculin is no easy one, and I must ask your indulgence if I have to enter into some rather technical details which may appear dry and uninteresting. I shall try and give you a plain and fair account of the matter, and I want you carefully to distinguish what are proved facts from conclusions, deductions, assumptions, or inferences, which can only be accepted as provisional or as working hypotheses.

OUTLINE OF KOCH'S ORIGINAL OBSERVATIONS AND EXPERIMENTS.

I am conscious that I am addressing many who are masters of the subject, but there are others probably who have come here to learn, and as there may be some who do not know the principia, the original experiments and observations of Koch which led to the discovery of tuberculin, I think it may be well to state them briefly at the outset.

1. When a healthy guinea-pig is subcutaneously inoculated with a pure culture of *tubercle bacilli*, during the first 10 or 14 days nothing happens. Then a hard nodule forms at the place of inoculation. The nodule softens, the skin over it gives way, and a discharging sore is formed which ordinarily persists during the remainder of the life of the animal.

2. If an inoculated guinea-pig be re-inoculated after an interval of six weeks, the effects at the seat of inoculation are quite different. In the first inoculation nothing happened for about a fortnight, but in the second the skin at the seat of inoculation soon, within a few days, becomes necrotic and sloughs, leaving a flat ulcerated surface which soon heals up without carrying infection to the lymphatic glands. The tissues of the inoculated animal thus react more quickly and more vigorously to an inoculation than those of the healthy animal. There is a shorter, sharper, and more successful fight. No nodule is produced, but an ulcer is quickly formed, which, unlike the sore in the first case, quickly heals.

This second experiment showed that a first inoculation enabled the animal to overcome the effects of a second inoculation. This was already well known in the case of other diseases, such as syphilis. But Koch also inferred that if the first inoculation produced conditions favourable for fighting the second, the second inoculation must also have a favourable influence on the lesions produced by the first inoculation.

3. He next experimented with dead bacilli instead of living ones. He found that dead cultivations ground down and suspended in water might be subcutaneously injected into healthy guinea-pigs without producing any other effect than local suppuration.

4. In the case of the tuberculous guinea-pig the result of injections of dead bacilli was very different, death following in from 6 to 48 hours. If a smaller dose were given widespread necrosis of the skin at the seat of inoculation resulted If a very small, much diluted dose were given, neither death nor necrosis followed, and if the dose were repeated at intervals of one or two days a decided improvement in the

The ulcer at the site of the

healed, which never occurs

lymphatic glands became smaller, the animal gained weight, and the disease was arrested. These two experiments showed that while dead bacilli were non-toxic to healthy animals and only caused local abscesses, they were lethal or highly toxic to the tuberculous in massive doses, but in very small doses were capable of effecting something like a cure in the inoculated animals.

It was, however, a serious drawback to the use of these suspensions of dead bacilli that they were not absorbed but produced larger or smaller abscesses. Koch, therefore, industriously set himself to separate from the bodies of the bacilli their active principle, so that he would be able to use it without producing suppuration. The result of his efforts was the wonderful substance since called tuberculin, whose effects we are here to-day to consider. The nature of tuberculin, its preparation, varieties, and underlying pathological principles will be fully expounded by the learned professors who are to follow,[1] and therefore I need say but little in this place. The old tuberculin introduced by Koch in 1890 was a pure culture of tubercle bacilli on nutrient broth containing 5 per cent. of glycerine evaporated down to one-tenth of its volume and purified by double filtration. The proportion of active principle present in the extract was estimated by Koch at a fraction of 1 per cent.

THE TUBERCULIN REACTION.

Just as the dead bacilli were non-toxic to the healthy guinea-pig but deadly to the tuberculous, so tuberculin could be given in large doses—2 c.c. or more—to healthy guinea-pigs without apparent effect, but in comparatively small doses killed the tuberculous. With regard to its action on the healthy man the difficulty was to find someone who could be *guaranteed free from tubercle. Koch gave himself an* injection of 0 25 c c. and got a well-marked reaction, and he therefore thought that the effect of tuberculin on healthy man was much more potent than on the healthy guinea-pig. The probability, however, is that Koch was not himself altogether free from tubercle. In recognised tuberculous patients it was found that very minute doses—one-thousandth of a cubic centimetre—generally were sufficient to produce a reaction. It was clear, therefore, that in tuberculin one had a substance which possessed the very remarkable property of acting as an intense poison to persons or animals already infected by tubercle, while being non-poisonous to healthy animals or persons. Up to that time there was nothing known exactly like it.

What was observed then, and has been constantly observed since, is that after a subcutaneous injection of a small dose of tuberculin in a tuberculous patient three results may follow, which have been described as local, general, and focal. 1. A painful swelling may appear at the seat of injection on the second or third day. A nodule may be felt by gently picking up the skin with the fingers, or the skin may be red over the swelling. Or there may be an area of redness round the puncture and the nodule may be in the skin itself. 2. A general reaction may be produced, characterised by rise of temperature usually within 24 hours, with headache, general malaise, pains in the limbs, loss of appetite, and sometimes dyspnœa. 3. A focal reaction, an inflammatory reaction at the seat of any tuberculous disease present in the body may be produced. This is apparent to the eye in the case of skin tubercle, such as lupus, where there are visible swelling and redness of the affected part. But in the case of internal tubercle the focal reaction manifests itself by symptoms and physical signs. In the case of pulmonary tubercle there is an increase of cough and expectoration, possibly traces of hæmorrhage, or pain over the affected part. On auscultation there is an increase of râles audible, or râles may be noticed where they have not been present before. Tubercle bacilli may possibly be found in the sputum for the first time after an injection.

Koch's original explanation of the action of tuberculin was to this effect: Tubercle bacilli in their growth in the

enough. If tuberculin be injected then it adds its forces to those of the bacilli themselves, and thus the area of necrosis extends sufficiently to cause the bacilli to die off. Successive doses of tuberculin do further damage to the bacilli until of justice to the victim of malignant disease that one must still advocate early and complete surgical removal where possible. One or two illustrations in coloured casts are here shown to demonstrate the achievements of radium in this field, though they by no means represent the many minor cases of recurrence after operation in the region of the scar, which radium is now able to dissipate.

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[1] In THE LANCET of August 9th will be found communications on the subject from Professor Sahli, Sir J. K. Fowler, and Dr. W. Charles White made to the Tuberculosis Conference.

In many cases of malignant growth at the nipple we recognise a type of epithelioma, beginning in the lining of the ducts, which when taken early can be completely cured by radium, and thus save the mutilating amputation of the entire gland, so strenuously advocated by extremists in surgery and of which heretofore I, too, have been so often guilty.

Let us consider now the types of cancer so dreaded by all, the worst types of breast and uterine cancer in women, and cancer of the tongue, œsophagus, stomach, and rectum in both sexes. Has radium made any record in controlling these? I hesitate to speak of actual progress in cancer of the tongue, œsophagus, and stomach. Yet in most cases of advanced disease of the tongue and œsophagus a prompt and marked amelioration, with reduction in size of the mass, is usually seen after judicious use of larger doses of radium. Yet the disease gains headway at last, and all that has been gained by temporary reduction is soon lost. One exception I may claim in a case of excision of epithelioma at the frenum of the tongue with radium application, which remains well at five years. Two cases of ulcerated induration, with leucoplakia types of smokers' cancer, remain cured for several years. In this field also much gain will undoubtedly be made from year to year.

In œsophagus obstruction by malignant growth one sees a widening of the channel and temporary relief, but no permanent gain justifying the term "cure."

In obstructive rectal cancer a greater and unquestionably favourable effect is seen. It requires large quantities of radium filtered through 2 millimetres of lead applied for 8 to 12 hours daily for several days to obtain the favourable results now so often seen. The patient is soon relieved of the distressing symptoms, and a marked reduction of the mass follows. He uniformly gains in colour and is continued in comparative health for several years, whereas death otherwise would occur in months. There are as yet no recorded cures.

It is in the field of uterine cancer, however, that we have more hope. Certain it is that the immediate effect of extreme radiumisation on cancer developed in the uterine cervix, or in the scar after operation, alters the disease so as to replace it by sound cicatrix. My earliest case occurred in 1905 in a woman with bleeding cancer of the cervix, which after curettage was well radiumised by 60 mgm. pure radium bromide. Pathological examination showed typical cancer invading the cervical tissue. She remains in perfect health without further treatment after eight years. The pathologist reviewed the microscope findings several times of late and avers there is no error in diagnosis.

Again, in 1905 I curetted a very extensive fungating cancer of the cervix in a married woman and applied 25 mgm. radium bromide for 24 hours with prompt healing and perfect health for three years, when I lost sight of the patient after her physician's death. In other cases of very advanced type, in which there were masses of fungus carcinoma, curettage and radium have maintained health for the past three or four years. In one patient during this year (a second recurrence of the deep scar after uterine extirpation for cancer by a well-known surgeon) I was asked to try radium, and was surprised to have a complete disappearance of all disease from the pelvis, which has shown a soft scar for the past few months. The patient seems restored to health.

This important field has been the subject of enthusiastic research with extraordinary results by Bumm and Voigts, of Berlin, Krönig and Gauss, of Freiburg, and Werner, of Heidelberg, whose findings give renewed hope of conquest. Such startling results will come as a surprise to those only who have not seen the remarkable retrograde effected on neoplasms by radium.

Even in the field of uterine fibroids—in the two cases in which I have tested radium—there has been shown progressive reduction, absence of hæmorrhage, and final cure. The drawings here exhibited amount to a demonstration. Although every surgeon knows that such retrograde change is not rare at the time of menopause or after removal of the ovarie it is more than a coincidence in these cases, and is suggesti of the artificial arrest of ovarian influence by radiumisatio This, again, leads up to the thought of subsidence of glan hyperplasia, as in hypertrophic thyroids and parotids (illu trated) under the same influence, and suggests a new field organotherapy.

Under the discussion of malignant disease we may right include destructive types of sarcoma, which illustrate in remarkable way the specific action of radium as a curati agent. One example of round-celled sarcoma of the eyeli here shown by successive coloured casts, shows a lar tumour of the lower eyelid, which had resisted Roentg rays, which rapidly disappeared after four hours of radiu so as to leave a normal lid. This has remained cured durin nine years, and the condition defies anyone to tell on whic eye the tumour had been. Here was a remarkable r assembling of cells normal to the lid out of the mass tumour.

But even this type falls into the shade when we see th cure of giant-cell sarcoma of bone by radium. The first ca of extensive destructive myeloid tumour of the jaw, which treated in 1904, remains cured to-day after nine years, wit a solid lower jaw replacing the pultaceous soft tumour an with all teeth healthy, and solidly embedded in bon Similar and invariable control of this type of disease ha occurred to me in nine cases. The last two are yet unde treatment, but are of such interest that they may be quoted.

A young man had the upper three inches of the righ humerus entirely replaced by a myeloid tumour expandin in lemon shape. Under cocaine anæsthesia a portion remove showed mixed giant-cell and spindle-cell sarcoma. I em bedded in the mass four tubes of radium (total 150 mgm. for three days, so as to irradiate and cross fire it. Durin the eight weeks following gritty bone began to form in th soft tumours, and then a bony shell formed. During si months a marked increase in bone and simultaneou shrinkage has occurred. Notwithstanding some centra necrosis of the soft tissue it bids fair to recover its bon solidity and strength.

The last and rarer pure myeloid sarcoma offers opportunit to demonstrate the superiority of radium to all other surgica measures. A gentleman past middle life developed myeloma in the right parietal bone. The bone dissolved a the growth progressed until a defect in the skull was seen as large as the palm of the hand, extending partly across the opposite parietal. His surgeon attempted operation, but retreated from the bloody trial after removing enough for examination. Two months ago the patient was brought to me, and I applied radium by distance filtration, which seemed eminently fitted to this case—hoping to avoid embedding it, except as a last resource. In no case has radium failed to effect retrograde change and arrest this type of tumour.

Finally, I desire to record one of the most recent and startling disappearances of malignant growth I have ever seen. A gentleman 60 years old was brought to me in May last with numerous tumours in closely related groups on his bald scalp. These developed steadily near an old scar after the surgical removal of a small one of the same appearance eight months previously, and had been rapidly increasing in size and number during four months. They varied in size and were grouped in chains and uneven purplish hummocks, more than a dozen in all. In clinical appearance they resembled nothing but sarcoma. Two physicians of experience who referred him to me regarded them as malignant and the patient as doomed. I referred the case to Professor Fordyce, a distinguished syphilographer and dermatologist, for opinion. He said it was unquestionably of hopeless malignancy, probably sarcoma. That was my view, and no excision seemed needed to demonstrate it. I show here casts taken before and after treatment. Radium by distance filtration offered peculiar advantage in this condition because of the even dissemination and cross-firing of the rays, when applied in the following manner. 150 mgm. of pure radium bromide were placed in a pasteboard box covered by one and a half inches of loose cotton, thereby to maintain it at an even distance from the scalp. The box was placed over the main group of tumours and held there for an hour and a half. Then it was moved over the other groups in succession, each receiving lateral radiation all the time, while the gamma rays played vertically ove the nearest tumours. The total exposure was seven hours, over six places. He returned to his home 500 miles away, and was to write in two weeks. On the twelfth day he appeared in person with the astonishing statement that the tumours had all gone. Examination by myself and Professor Fordyce showed a normal scalp, movable and flexible as in health, and nowhere a trace of former disease. Two months later his physician carefully examined him and reported that no trace of trouble could be found. This threatening growth has entirely been dissipated.

In conclusion, there has been established: 1. An undoubted retrograde degeneration of malignant cells under correct dosage of gamma radiation. 2. Effective use of radium lies in the application of a large enough quantity to avoid the *stimulating* action of *little* doses at short range. 3. The utilisation of gamma radiation with its deep penetration can be made by the removal of alpha and short beta rays by filtration through lead. 4. Such filtration requires many times as long for a sufficient amount of gamma rays to act, as when other rays are eliminated by what may be called "distance filtration." One and a half inches or four centimetres seems in practice to exclude most of these and gives free and instant play of the entire gamma range without delay of passage through lead. 5. Cross firing of several specimens simultaneously or of one large specimen moved successively to several near by places is necessary for the best work. 6. Normal tissue resists many times as large doses of gamma rays as are required to check and dissipate morbid growths, as shown in the larynx.

New York.

THE PREVENTIVE AND CURATIVE TREATMENT OF INDUSTRIAL LEAD POISONING.

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IN "Dangerous Trades," a book published 11 years ago, a chapter written by Dr. H. Lewis Jones of St. Bartholomew's Hospital is devoted to the treatment of lead poisoning by means of the single electric bath. As to the efficacy of the treatment there is no doubt. Although in cases of lead paralysis recovery is slow, yet restoration is quicker when, in addition to medicinal treatment and massage, electricity is carefully employed. As Dr. Lewis Jones remarks in the article referred to, elimination of the metal is necessary in order that a patient may recover from the effects of the poison. In an ordinary way elimination of lead probably takes place by the sweat glands of the skin, by the kidneys, and by the mucous membrane and glands of the bowel. On the other hand, the direct effect of electrolytic elimination is to cause the lead to pass, by a process akin to osmosis, in some soluble form, probably as chloride, from the tissues of the body to the electrolytes surrounding the body—that is, to the electrodes in the bath in which the patient is wholly or partially immersed. The experimental evidence that lead can be extracted from the tissues of the body is not free from possible sources of error, for the amount of lead in the body at any time must be small, probably not more than a few grains, so that there would be in a dipolar bath—that is, a bath into which both poles are placed—considerable diffi- [illegible] e poles [illegible] local, [illegible] ars as peroxide, whereas on the negative pole it is in a spongy metallic form. Any lead found in the bath water in which a workman has been immersed may be a metallic salt which was simply lying on the skin, or it may be lead removed from the tissues and which was in process of elimination normally by the sweat glands; but admitting these as sources of the metal there is the fact that electrolysis favours the elimination of the poison.

The point to which I wish to draw attention is the employment of the electric bath in rather a different manner to that recommended by Dr. Lewis Jones, also its application to a wider field than the purely curative. My suggestion is that we should not wait until lead workers become ill, but that we should treat them when they are commencing to go wrong. It is with lead as with opium, arsenic, and infectious diseases *generally*, one of two attitudes is assumed by the body in regard to it. As a consequence of exposure to lead there *may* be *created* immunity—that is, tolerance *on the part of an individual to* it; or there may be developed anaphylaxia—that is, an increased susceptibility to the influence of the *metal*. These conditions *are not constant—the one may pass into the other*, so that a person who has been immune for years and who has appeared to be proof against lead poisoning *suddenly* becomes the subject of it. There is the opinion that one attack of plumbism predisposes to another. It is common knowledge that some lead workers are more readily *overcome* by the metal than others. There is not only an individual but there is a family idiosyncrasy *to* lead. There *is also a* sexual predisposition, for females are more readily influenced by lead than males. It was on this account that female labour was abolished in the dangerous *processes of* white lead manufacture. This circumstance of itself did much to diminish industrial lead poisoning. Means for the removal of dust, adequate ventilation, replacement of the dry by wet methods of manufacture, personal cleanliness, use of baths, and periodical medical *examination* of the workers have done much to diminish the number of cases of lead poisoning, but electrical treatment in the manner subsequently to be detailed will with the above adjuncts render even more effective the means hitherto adopted to prevent industrial plumbism. For the suggestion I am indebted to Mr. T. M. Clague, of Messrs. Mawson and Proctor, chemists, of this city.

[illegible] under this method [illegible] limbs In a few days [illegible] *ead was resumed, and* [illegible] al again lost the use [illegible] ath soon restored the [illegible] end of another year [illegible] d died. In the liver, [illegible] opical examination a [illegible] the liver and kidneys lead was extracted.

The educational points in this experiment are the length of time the rabbit took lead, the large amount of the metal taken, the recoveries from paralysis under the double electric bath treatment, and the immunity, natural or conferred, which the animal exhibited to lead. During life and when the animal was quite well large quantities of lead were found in the fæces, so that only very minute quantities of lead were apparently being absorbed.

It was after discussing with Mr. Clague the best electrical methods for removal of lead from the body of this animal during life, and the possible restoration of the rabbit to health, that de-ionisation by the two-bath method was adopted, and with the successful results already indicated. When an electric current is passed through a solution of a salt—that is, a united acid and base—the acid collects at the point where the positive wire comes in, and the base similarly goes to the negative pole. Thus $\frac{NaCl}{ZnSO_4}$ after the passing of the current appear as $\frac{Cl}{SO_4}$ at the positive and $\frac{Na}{Zn}$ at the negative. These two entities in each salt are termed ions, and they will flow through membranes. If the solution is applied to the skin ionisation occurs. This has been proposed and practised with some success as a means of introducing lithia or iodine or similar ions into the body. Taking the case of either of these drugs, we would naturally place the joint or limb under treatment into contact with the solution of the salt and lead to it the appropriate active electrode, while the other pole would be led to an indifferent part of the body; but if baths are used more current may be passed, and consequently more of the desired ions can be introduced. These remarks concern ionisation. Few persons would nowadays use one bath with both poles in it for such a purpose. The treatment I am recommending is de-ionisation and the use of the two-bath system as the special feature both from the preventive and curative point of view. In the single-bath method, in which a part only of the patient's body is immersed, some of the electrical current passes through the immersed part of the patient; it may possibly pass through the whole body, some of it through the liquid of the bath, but in the double-bath system the whole of the current passes through the body, and the desired polarity is thus ensured. As the positive pole is placed in one bath and the negative in the other there is only one possible path for the current to pass, only one possible direction in which it can flow. It is by this means that we explain the invariable presence of lead on the negative pole, also the rapid disappearance of the blue line from the gums of affected workmen.

Some of the white lead manufacturers in Newcastle have been kind enough to allow us to put to a practical test upon workmen in the factory the experience of the laboratory rabbit experiment already alluded to, and to these gentlemen I express my warmest gratitude; also to Dr. J. R. Baumgartner and Dr. Francis Irvine, the works medical men, for their concurrence and assistance. Mr. Clague fitted up the electrical installation in the factories and arranged a series of arm-and-leg baths whereby several workmen can have the bath at one and the same time. The bath is given for half an hour daily or every second day; the voltage employed is 16 and the ampèrage 20 to 40 milliampères. The positive pole is placed in the foot bath and the negative in the arm bath. The baths may be made of earthenware or wood, and the electrodes of pure aluminium. If the current is introduced gradually by a suitable rheostat no shock is felt, nor is any unpleasant sensation experienced by the men. The resistance of the bath water is reduced by adding common salt. This affords a means of regulating the current to suit a hypersensitive patient, although in all our cases no difficulties were experienced.

In going through a white lead works a careful observer is struck by the pallor, the sallowness, the cachectic appearance, and the expressionless features of the workmen. They have not the appearance of healthy men. They differ from groups of workmen employed in most other trades. In speaking to the men there is detected a distinct tremor of the naso-labial muscles of the face, and on examining the mouth a blue line may or may not be seen on the gums. In the urine of several of the men minute traces of lead may be found. Most of the men, although looking pale and sallow, do not complain of feeling ill. They may thus go on with their work for months or years until something happens, such as a cold or influenza, or there is a debauch, or without any explainable cause other than derangement of the emunctories, when the men who had been following their employment with regularity all at once, or gradually, complain of colic, develop wrist-drop, or some other sign of plumbism.

It is one of the regulations of the Factory Act that white lead workers shall have a warm bath at least once a week, and that they shall wash their hands and forearms, also rinse their mouth well before taking a meal and before leaving the factory. A warm bath does not always remove the lead dust which is adherent to the skin. Workmen who had washed with a medicated sulphur soap observed that the parts of the skin which had been lathered became brownish black owing to a deposit of sulphide of lead. If, therefore, a warm bath is obligatory, why should this not be the electrical bath, especially for men who are suspected or who are doubtfully becoming lead poisoned, since the muscles would be stimulated, their nutrition favourably influenced, and elimination of the poison promoted?

Taking workmen variously occupied in the lead factories, Mr. Clague and I applied ammonium sulphide to the skin on different parts of the body. Brownish discolouration almost immediately appeared. It was most marked on the palm of the hand; the colouration was always most marked towards the outer border of the hand and on the right more than the left. Even the skin of such protected parts of the body as the chest and calves of the legs gave the colour reaction, a circumstance which as the stain could be readily removed by brisk friction with soap and water pointed to fine white lead dust having found its way under the clothing and become adherent to the skin. It was interesting, too, when the application was made to the skin above and below the water-level marks on the arms which had been immersed in the bath to observe the rapidity with which the colour developed on the skin above the water-level mark and hardly at all below it. Brisk scrubbing quickly removed the brown stain above the water-level mark, but if the colour developed below this line friction did not remove it. These circumstances suggest that the lead was present (1) as dust lying on the skin and removable, and (2) deposited in the cells of the superficial layers of the skin. Where the skin was rendered brown by ammonium sulphide previously to the men taking the bath it was interesting to watch the disappearance of the stain when the arms were in the electric bath. Similar brown marks were found on the skin of persons who had become poisoned by drinking water impregnated with lead.

We have treated 14 men in the factories. Those whom we singled out for treatment were workmen who looked especially pale and cachectic. Although not voluntarily complaining, three of them did not feel quite strong, while one of the men had been off work for 10 weeks on account of complete paralysis of hands, fingers, and wrists. Most of the men had a well-marked blue line on the gums; nearly all of them had, but in varying degree, as tested by the dynamometer, paresis of the muscles of the hands, wrists, and forearms, so that they could not grip well. Under treatment by the double electrical bath method not only did the muscular power of the forearms and wrists improve, but the pallor of the face lessened and the men expressed themselves as possessing a feeling of well-being such as to which for months they had been unaccustomed. Recovery from complete wrist-drop under any circumstances is slow, but it is hastened by the electric bath. In the bath water lead is found. It was found, for example, in the bath water of the patient with double wrist-drop who had not worked for ten weeks. In his case the lead could only have come from the tissues of the body. Another interesting point, too, is that in most instances where lead was found in the urine before submitting the workman to the double electrical bath treatment less lead was found in the urine after the bath. How far this is associated with the vicarious function of skin and kidneys is a subject for further investigation.

Apart from the personal feeling of betterment which follows treatment, also the detection of lead in the water of the bath and on the electrodes in cases where men have for weeks not been working in lead, one of the strongest indications of the dispersing power of the electrical bath in regard to lead is seen in the rapidity with which a well-marked blue line on the gums will disappear. Under medicinal treatment such a line will take three to six months to disappear, but to our surprise and gratification in one man an intensely blue line had almost entirely disappeared after three baths. It is interesting to watch the effect of the electrical bath treatment upon the blue line. This becomes thinner, its continuity becomes broken, after which it gradually fades away.

Our experiments are still being pursued. If further trials and extended experience strengthen the opinions I have expressed then we have in the double electrical bath treatment of persons suspiciously the subjects of industrial lead poisoning, of those who are harbouring lead in their body without exhibiting symptoms, or of persons exhibiting doubtful symptoms, a means whereby the metal may be removed from the body, directly or indirectly, sickness and suffering prevented, and the labour capacity of workmen improved. The gain will be equally to employers, as well as to the employed. Should success follow the adoption of the treatment above advocated on a large scale it would make the white lead industry less dangerous than it has hitherto been. The bath is painless and causes no inconvenience when properly manipulated. Several workmen can have the bath at the same time. The treatment might be objected to by the workmen on the ground that it causes the blue line on the gums, which is one of the hall-marks so to speak of industrial poisoning, to disappear, but the Burtonian line is not always present, nor does its absence mean that the case is not one of lead poisoning. Besides, the treatment would keep workmen in better health, able to continue longer at work and to receive their full wages, while as regards employers, their liability would not be removed, but upon them there would fall fewer claims for compensation. In a word or two, the whole industry would benefit.

I have found the influence of the double electrical bath upon the more obscure symptoms of plumbism due to drinking water to be not less striking than in industrial lead poisoning.

As things are at present all is not right in the world of lead. If we compare 1900 and its 1058 cases of lead poisoning with the year 1912 and 587 cases the figures are in one way satisfactory, but the deaths in 1900 were 38 and in 1912 they were 44. Taking the years in succession from 1905 to 1912, the numbers of cases notified and of deaths which had taken place annually were 592 with 23 deaths, 632 with 33 deaths, 578 with 26, 646 with 32, 553 with 30, 505 with 38, 669 with 37, and in 1912 587 with 44 deaths. In recent years the mortality from industrial plumbism has not fallen but risen. There has been no uniformity in the decline of cases notified, and this, too, during a period of years when regulations for the prevention of lead poisoning have never been better or their fulfilment more rigorously enforced.

As we do not know at what particular point a workman who has been absorbing lead into his system in excess of elimination of it suddenly or gradually develops symptoms of plumbism, my suggestion is not to wait for symptoms to appear, but to treat suspected cases. Next to combating with modified success tuberculosis and cancer, also the question of alcohol from the social standpoint, if anything can be done to reduce the amount of sickness in industries in which lead is used no effort on our part could be devoted to a loftier purpose or to a higher end.

Newcastle-upon-Tyne.

INVESTIGATIONS INTO THE RELATIONSHIP OF THE TARBAGAN (MONGOLIAN MARMOT) TO PLAGUE.[1]

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Introduction.

IMMEDIATELY following on the International Plague Conference held in Mukden in April, 1911, the Chinese Government, anxious to carry out the recommendations of the Conference, instituted the North Manchurian Plague Prevention Service. The primary object of the scheme was the formation for North Manchuria of a medical service equipped and ready to act and control any situation that might arise through an outbreak of plague in the district, and also to maintain hospitals at Harbin (in the headquarters of the service), Aigun (Taheiho), Sansing, Lahasusu, Manchouli, and any other town in the district where such an institution might be necessary. In addition medical service was to be given to the poor and destitute, and when the hospital accommodation was not required for plague cases, general, medical, surgical, and infectious diseases were to be treated in the wards. Further, medical officers in the service were to instruct the people in general hygiene, &c.[2]. It was hoped that the service would develop into a public health service for the whole of China. The Manchurian Plague Prevention Service was eventually established on a firm basis on Oct. 1st, 1912, although a year and a half previous to that date medical officers had been stationed at Manchouli, Harbin, Tsitsihar (capital of Heilungkiang province), and Lahasusu to carry out the objects for which the service was founded.

Among the delegates of the International Plague Conference, Mukden, April, 1911, it was generally believed that there was a close connexion between plague—or at least the recent epidemic of pneumonic plague of Manchuria—and the tarbagan or marmot (arctomys bobac, Schreb). So little was known about this animal and the grounds for associating it with plague were based on such slender scientific evidence—as will appear later in this report—that it seemed to me the first step in the investigation of this question was to organise an expedition into the country where the tarbagan abounds, and there to *study its habits and the conditions under which* it lives, and to carry out scientific investigations as to the presence of plague among the animals.

On the morning of May 26th, 1911, I arrived at Manchouli to make inquiries as to the conditions under which hunting took place, and to gather information which would prove useful in making arrangements for an expedition into the tarbagan country later in the year. My observations made at that time are embodied in this report. I left Manchouli on the evening of May 29th, and returned to Harbin. In the beginning of July rumours were afloat that a large number of tarbagans were dying in the neighbourhood of Scharasone (Transbaikalia, Siberia). On July 11th I left Tientsin with orders to organise an expedition to investigate into the matter, as the Chinese Government was most anxious that all measures should be taken to forestall a possible spread of plague to man. The Manchurian authorities agreed to build hospitals for plague at all the important centres, and instructed me to staff them with properly qualified medical officers; and from the Viceroy at Mukden downwards all the officials took great interest in the proposed expedition. In the *Peking Daily News* a correspondent at Station Manchouli wired that "the tarbagan epidemic of Siberia is spreading southwards towards the Chinese frontier. Dead marmots are now found as far south as Scharasone, which is only 35 miles north of the Russian-Chinese frontier. Local measures are sufficiently strict to prevent the disease from entering Manchuria."

Arriving at Harbin on July 15th, I called on Professor Zabolotny, who was at that time working at certain plague problems in the Russian laboratory of that town. After showing me his specimens and telling me the results of his investigations—a note of which appears in this report—he invited me and my party to proceed with him to Manchouli in a special car provided by the Chinese Eastern (Russian) Railway. I gladly availed myself of the invitation. It is interesting to note that this was the first scientific expedition sent out by the Chinese Government. The Russian party consisted of Professor Zabolotny, Dr. Tschourilina (a lady), and Dr. Issaief. Our own party consisted of Dr. Chén Sze-pang, M.B. Cantab, Dr. Tsang Pu, and myself. Our investigations form the basis of this report.

Itinerary.

Leaving Harbin, we arrived at Manchouli station on July 21st, and arranged that this should be the base of the Chinese expedition. We gave instructions that huts should *be built for us, for the laboratory, and for the animals.* The next day Dr. Ch'en and myself left for Borsja (Transbaikal district) to join the Russian party who had their base there. (Borsja is 121 versts west of and three hours by express train from Manchouli, 3 versts equalling 2 miles.) We remained with them for a week, visiting Tschintansk, Arabulak, and the neighbouring villages. On July 29th we returned to Manchouli to rejoin our party. A few days afterwards the Russian staff broke up, Professor Zabolotny and Dr. Tschourilina returning to St. Petersburg and Dr. Issaief to his station on the Russo-Chinese frontier.

Our start for Mongolia to make further investigations was delayed by the rainy weather until August 6th. Proceeding westward, we reached Charbada on the 7th, when we encamped for two days. On August 9th we left for Kerloni. As there was no direct way there we had to return to Manchouli, and from thence proceeded in a south-westerly direction parallel to the large but shallow river called Kerulen, which after it has passed through Kulun Nor (Kulun See) is called River Argun, and later on becomes the Amur. We travelled southwards, passed Zagan on the east, and after two days reached the large lake Kulun See. Finally, we encamped at Kerloni—a Mongol colony situated on the river—on August 11th. We then proposed to visit Abagaitui in Siberia by way of Dalai Nor, but our guide informed us that this was impossible, as it would mean crossing a mountainous district where there was no water. On the following day, therefore, we decided to return to Manchouli, which we reached on August 14th. From this date until August 25th we lived at Manchouli, making excursions into the country around and doing experimental work with tarbagans.

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[1] Abstract of a paper read in the Section of Tropical Medicine and Hygiene at the Int[illegible]

[2] [illegible] Plague Prevention Service is consulting physician to these establishments.

On August 25th I departed from Manchouli in order to inquire into an outbreak of plague which was reported from Puk'uei (Tsitsihar, capital of Heilungkiang Province) and from thence went back to Harbin. I left Dr. Ch'en at Manchouli to finish our work there and to make any other investigations that might be required. He left Manchouli for Harbin on Sept. 30th, 1911, as the evenings were getting too cold for further stay in camp.

Manchouli.

The principal marts in the Manchurian provinces for tarbagan skins are Manchouli (875 versts, or 583 miles, by rail west of Harbin) and Hailar. Hailar is 116 miles (174 versts) by rail east of Manchouli station, but as the latter is the only customs station for the district, skins sold in Hailar have to be sent there for exportation. The chief Russian mart is Borsja (Transbaikalia), some 80 miles (121 versts) west. Manchouli is situated in Chinese territory at the junction of the Chinese Eastern and the Trans-Siberian railways, and is about ten miles east of the frontier between the province of Heilungkiang and Siberia. Here are established the Chinese and Russian Customs for the examination of goods and baggage passing along the railway from one country to the other—Manchouli having been opened as a customs station in February, 1907. Most of the information which follows about the place was obtained when I visited the town at the end of May and again in August. Manchouli lies 2600 feet above sea level, and is surrounded on all sides by low barren mountains. The water is saltish, hard, and scarce. The railway zone covers a large area, and consists of four sections: (1) The Private Settlement, containing 5000 Russian and 1500 Chinese inhabitants; (2) the Chinese Eastern Railway Settlement, containing about 700 inhabitants, mostly Russian; (3) the Transbaikal Settlement, containing 800 inhabitants; (4) the River Settlement on the further side of the "river," a shallow ditch some 5 feet wide. Altogether, the population of Manchouli may be estimated as consisting of 8000 Russian civilians, customs officials, &c., 3000 Russian troops, and 2000 Chinese, most of whom are of the coolie class. During the Russo-Japanese war there used to be as many as 40,000 to 50,000 people resident at Manchouli.

(*a*) *Occurrence of plague at Manchouli and surrounding districts.*—In 1898 Professor Zabolotny was in Mongolia and found plague in the region he visited. Between this date and 1905 I could gather no reliable information as to the occurrence of the disease in or around Manchouli. Dr. Bissemsky, the Russian physician in charge of the railway at Manchouli, supplied me with the following interesting information regarding outbreaks of plague which had occurred in his district since he went there in 1905:—

1905: Plague occurred in August at Dalai Nor (14 cases) Manchouli (4 cases). Total, 18 cases. Bubonic type. (Dalai [illegible] first railway station, 28 versts east of Manchouli.) [illegible] occurred in Abagaitui (Russian territory), 15 cases, an[illegible] (2 cases). Total, 17 cases. Pneumonic type. (Abr[illegible] north of Manchouli.) 1907 One case was import[illegible] territory into Manchouli. Bubonic type. 1908 [illegible] of plague in Manchouli, but there was reason to [illegible] was present among the Mongols along the Ar[illegible] doubt as to the type of the disease, but it s[illegible] pneumonic. 1909: No cases reported. 1910 [illegible] 400 cases at Manchouli. Pneumonic type.

To bring it up to date the [illegible] supplemented as follows:—

1911: End of August, 5 cases at Sc[illegible] 1912. Beginning of Septembe[illegible] Three cases. All fatal. Evid[illegible] P. Haffkine). (Chita is 447 [illegible]

In regard to the abov[illegible] [th]ese of 1905, 1906, [illegible] s and Cossack [illegible] Mongols die of su[illegible] Chinese w[illegible] March a[illegible] b[o]th [illegible] endemic in [illegible] be borne [illegible]

has travelled eastwards, giving rise to sporadic outbre Eastern Siberia. This subject has been treated caref a series of articles written by the British delegate Constantinople Board of Health[4] and by the Russi Koltshof,[5] quoted by the British delegate. So impor the subject in reviewing the occurrence of plag Manchuria that I quote these articles at some length convenience the subject has been considered more in chronological order.

Koltshof gives the following summary of the epider the Bukeëf Horde of the Kirghiz Steppes of the Ast government during the 12 years preceding 1911. The generally gives rise to two annual [illegible] the other in winter. [Details wer[illegible] years 1899–1910.]

In Odessa, from May 22nd to August 28th, 1910, there were of plague, of which 24 were fatal; and at the beginning of 1910, there were 4 cases.

In July, 1910, plague appeared in the Kirghiz Steppes—nan the Asiatic province of Semiretchinsk and in two villages Abbastin quarter in the Prjevalsk district of that province; were 17 cases of pneumonic plague, all fatal, between Ju August 11th. No further information regarding this outbre been published.

In the Uralsk government, in the five villages of the Jamb district, between August 10th and 14th, there were 7 cases of with 3 deaths. It should be noted that the dates given abo according to the old style calendar, which is 13 days later th Gregorian.

Concerning the outbreak of pneumonic plague at Manc in the autumn of 1910, the following occurs in Dr. Ch Shao-ching's paper read at the International Plague ference (see Report, p. 28):—

Observations reported to me by [illegible] that two carpenters who lived in [illegible] Inn died with spitting of blood [illegible] (Oct. 10th). These two carpenters had been in the service of a for named Chang Wan-shun at Dawoolya (Daurija), a railway statio Siberia situated some six miles west of the boundary line C Wan-shun told me that six or seven of his carpenters had died blood-spitting in Dawoolya on the 13th day of the 8th M (Sept. 16th), and said he believed that plague had appeared Dawoolya before it was known in Manchouli. "Later on, it found that 9 out of 20 coolies, who lived in a small room in Wa ling's Inn, were suddenly taken ill with blood-spitting. One of t was sent to the Russian plague hospital, and it was discovered tha suffered from pneumonic plague. Two died in the house that s night, but the rest ran away to different places in the town, thus disseminated the disease."

[Returning to the articles already referred to in THE LANC details followed relating to the years 1910–12 as to vari outbreaks of plague, largely of pneumonic type, in th Kirghiz Steppes and elsewhere.]

(*b*) *Prohibition of tarbagan hunting.*—During Februar 1911, the (Chinese) Prefect of Manchouli prohibit[illegible] hunting of th[illegible] the penalty for disob[illegible] [illegible]ments are still being pu[illegible]

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[3] The Kir[illegible] ghiz Steppes, [illegible] Astrakhan ([illegible] covered by thes[illegible] ments are situated in the go[illegible] ralsk, and [illegible]

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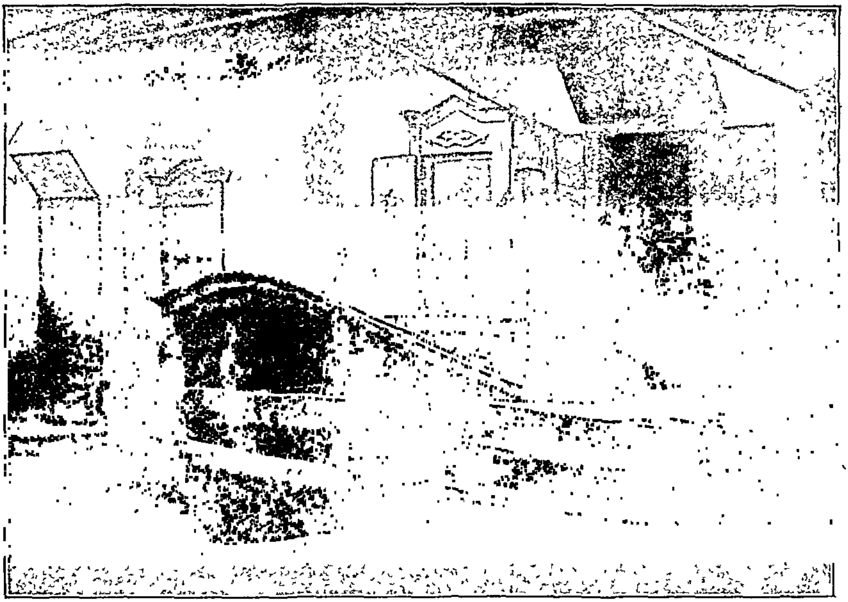
g lead had hat the brownish therefore, not be the pected or who e the muscles bly influenced, n the lead factories, lphide to the skin on discolouration almost arked on the palm of most marked towards the right more than protected parts of of the legs gave the colour the stain could be readily soap and water pointed to under the clothing teresting, too, e and below immersed a colour

and extended experience st[illegible] have expressed then we have bath treatment of persons sus[illegible] industrial lead poisoning, of lead in their body without persons exhibiting doubtful the metal may be remove[illegible] indirectly, sickness and su[illegible] capacity of workmen imp[illegible] to employers, as well as follow the adoption of large scale it would dangerous than it has and causes no incon[illegible] Several workmen can treatment might be ground that it caus[illegible] one of the hall-mar[illegible] to disappear, but [illegible] nor does its abs[illegible] poisoning. Besi[illegible] in better health, receive their full liability would n[illegible] fall fewer claim[illegible] whole industry [illegible]

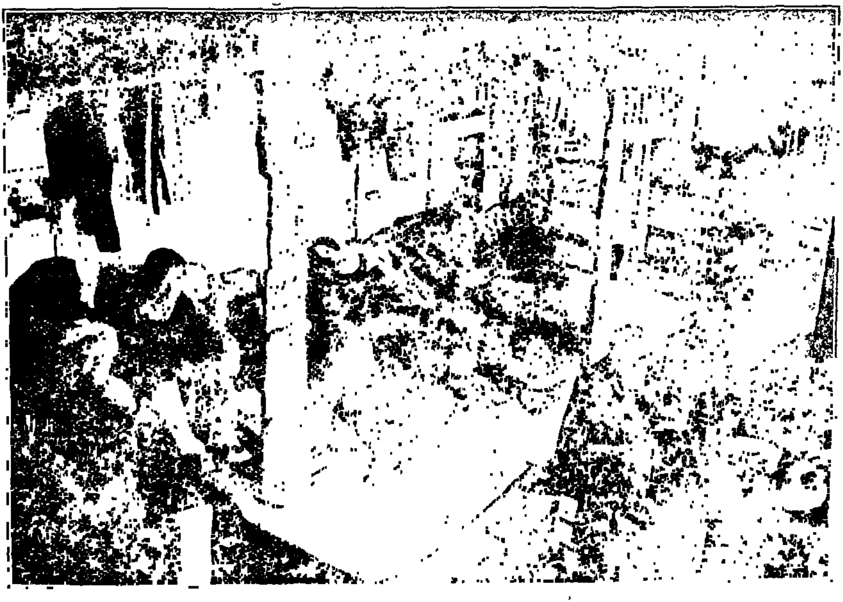
I have found upon the more drinking water

FIG. 1.



Gateway of an underground inn at Manchouli, which is here shown barred with wooden planks.

FIG. 2.



Interior of an underground inn at Manchouli showing the lower tier of berths. To take the photograph from which this figure is reproduced it was necessary to lie at full length on one of the upper berths.

underground and those partly above ground and partly underground. (Fig. 1.) Those partially underground are more popular in cold weather because of their greater warmth; in winter the outside temperature as a rule reaches −30° to −40° C., and the ground is frozen to a depth of between 6 and 8 feet. The windows appear just above the ground, and their roofs are made of mud.

The accommodation in both types of inns is based much upon the same plan. Two, and sometimes three, tiers of berths for the lodgers are present, there being just room enough between the tiers for a man to sit up. In one house I visited there were 40 berths—20 above and 20 below—the measurements of the room being only 25 feet square and 14 feet high. Fig. 2 shows the interior of an underground inn. Even in May the rooms were ill-ventilated and stuffy. In winter, when all the windows are closed and the fires are lighted, the stuffiness must be great. Dr. Ch'uan visited some of these inns in the winter. His report showed the conditions to be bad in the extreme. In one hut, 15 feet square and 12 feet high, there were packed in three tiers of berths, one above the other, more than 40 people. The windows were closed, and there was a heating stove in the middle of the room. The odour was indescribable, being made up of a mixture of foul breath, the vapours of old dirty fur garments, and decomposing pelts which were lying alongside the men. The usual way of heating these inns is by means of a *k'ang* on either side of the central passage leading from the door. A *k'ang* is a horizontal brick flue about 5 feet wide and 2 feet high, at one end of which is an opening where is lighted a fire of wood or *kaoliang* (millet) stalk. At the other end of the *k'ang* an opening is made through the outside wall of the house, and leads to a chimney for the escape of the smoke. *Kaoliang* stalk is cheaper than wood, and hence is usually used in poor houses; the heat produced is not very great, but is sufficient to keep the room at 2° to 5° C. even when the thermometer outside registers −20° C. The windows are few in number, and usually made of a wooden framework pasted with white paper, thus keeping in the heat but allowing little sunlight to penetrate. The men eat, sleep, and very often cook in the same room. They sleep in rows with the head against the wall and the feet towards the central passage. There is no partition between adjoining berths, so that they easily breathe and cough into each other's faces. Their food consists mainly of millet bread, boiled cabbage, and boiled turnips; they have meat perhaps once a month. For board and lodging the hunter pays at least 15 roubles a month; in busy times more.

The winter clothes usually consist of a pair of padded cotton trousers, padded socks, and thick-soled Chinese shoes, two or three layers of body clothing, and a long cotton-padded gown, reaching to the ankles. In very severe weather they wear in addition long sheepskin garments and fur caps. During winter the men seldom change their clothes which abound with insects—e.g., lice, fleas—but in summer they lay aside their thick outer garments and wash the inner ones, using them alternately. Unless very poor, the winter trousers are then replaced by thinner ones, which cost about a rouble (2*s.* 1*d.*) each.

In these inns I have found coolies from Shantung and Chihli, Manchus and Mongols; in addition the hunters consist of Buriats and Cossacks. These unhealthy huts are owned by Russians, and were built originally for their poor-class nationals, but perhaps they were never so overcrowded as when Chinese occupied them. From 1908 to 1910 so many people came to the districts to hunt the tarbagans that the owners of the inns did a roaring business, and packed the men in every available space, extra tiers being added whenever possible above those already existing. It should be remarked that the number of Mongols regularly resident at Manchouli seldom reached a dozen; but at certain times of the year, especially in summer, large caravans, consisting of whole Mongol families, pitched their tents on the vacant space in front of the *yamen*—that is, a Chinese official's residence or place for transacting official business. At the time of my visit in July, 1911, there were nearly 50 families (some 150 people in all) thus encamped. Some lived in tents, others inside their rickety carts. These vehicles have no springs and no metal rims to the wheels. On such occasions the Mongols brought with them for sale horses, cattle, and sheep, as well as skins. They were very orderly, and willingly abided by the rules laid down by the prefect.

(*d*) *Proposed Chinese hospital at Manchouli.*—Soon after the International Plague Conference it was decided to build a plague and a quarantine hospital at Manchouli. The hospital was to have accommodation for 20 plague cases, 2 suspect cases, and 150 contact cases, and was to be in charge of a senior medical officer with European degrees, residing permanently with a trained staff. Plans had been submitted and selected and the work begun, but winter stopped the work temporarily. Soon after came the revolution in China followed in January, 1912, by the troubles in Mongolia. Among the things destroyed at Manchouli by the Mongols were the schools, the *yamen*, and even the foundations and materials intended for the new hospital.

(*e*) *Note on the fur trade at Manchouli.*—[Returns were here given showing the great increase in the trade in the years 1908–12. It was estimated that in 1910 2,000,000 tarbagan skins in all were exported from Manchouli. In June, 1913, over 4,000,000 tarbagan skins were lying at Manchouli ready to be carted by road to Mazijewskaia for export to Europe.]

One Isolated Case of Plague in a Tarbagan.

When I visited Harbin in May and again in July I called on Professor Zabolotny, who was working there at certain problems in connexion with plague. I believe that a full account of these has been published already. (1) Among other things he mentioned to me that a tarbagan had been caught on June 24th by Dr. Issaief near Scharasone on the Siberian side of the border, suffering from plague, and died soon afterwards. Zabolotny showed me the organs of this animal. There were marked signs suggesting plague in the spleen, lungs (hæmorrhages), and there were cervical buboes. Growths obtained from the organs gave pure cultures. From one of the cultures thus obtained Zabolotny inoculated in Harbin a healthy tarbagan on the right leg, and produced two large buboes in the right groin only. This animal died from septicæmia. (2) Four other tarbagans were suspected to have died from plague. At the time when I met Zabolotny the diagnosis of these four cases was not complete. Later, however, it was found that none of the cases were plague. (3) During July, Zabolotny had received reports of large numbers of tarbagans dying north of the river Borsja in the neighbourhood of Kerulen. We decided to equip a joint scientific expedition and visit the spot without delay.

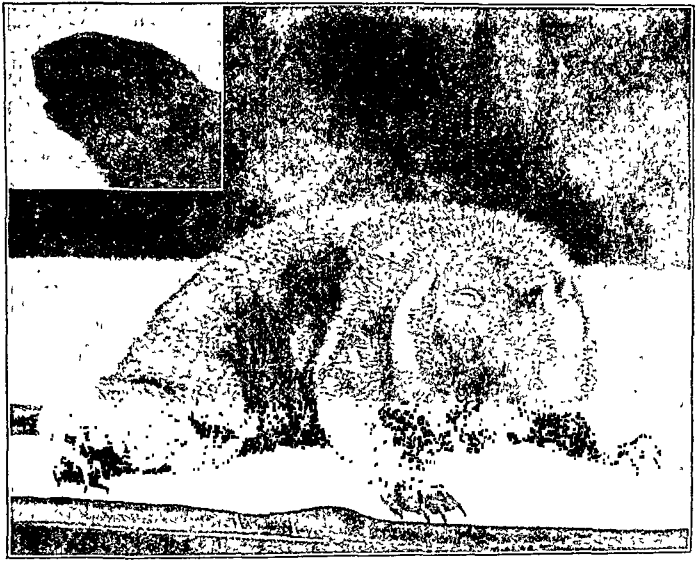
Work at Borsja. July 22nd–29th, 1911.

Borsja (Siberia) is 121 versts west of Manchouli on the railway, and is the centre of tarbagan hunting in the Transbaikal district. During our stay there no hunting was being carried on, being forbidden. There were some 200 to 300 Chinese engaged in small business; usually these depended on the Cossack hunters. On the morning of July 22nd we arrived at Borsja, and joined Professor Zabolotny and his staff. The accommodation consisted of three railway cars: (*a*) a car fitted up for our living quarters; (*b*) a laboratory car fitted up with incubators, sterilisers, &c., and having a compartment in which post mortems on animals were to be performed; (*c*) an animal car, containing about 40 cages in which tarbagans could be kept for observation. These cages were mostly oblong, and were made of thin iron sheets and ventilated by means of round apertures punched in their sides. Special permits to hunt were given to skilled Russian hunters, who were instructed to bring in specially any sick tarbagans. For healthy animals we offered 1 rouble, and for sick ones 5 roubles. Forty tarbagans were kept for observation in the cages; when we had satisfied ourselves that they were perfectly healthy they were released, and others put in their place. In this way about 80 tarbagans came under observation.

During the week we spent at Borsja no sick tarbagans were brought in and none of those under observation showed any sign of disease. On the day of our arrival at Borsja we performed post mortems on five tarbagans and found all of them perfectly healthy. Professor Zabolotny, Dr. Ch'en, and I drove in carts and also walked over the whole neighbourhood, visiting particularly the places where sick and dead animals were reported to have been found in large numbers. On July 24th we drove to Tschintansk, a village south-west of Borsja. There were plenty of tarbagans on the way, and we stopped and examined the country at different stages of the journey, but could find no trace of sick animals.

The driver of our *drosky* had been in these parts for the

FIG. 3.



A sick tarbagan. Note the scar on the head due to fighting before capture. The inset shows the head of the tarbagan in profile.

last 27 years. He informed us that as early as 1884 tarbagans had died from an epidemic in this neighbourhood, and that one day a Russian doctor and his dresser, stationed at Akscha, performed a post-mortem examination on a hunter who had died under suspicious circumstances. They both took ill, and two days after performing the post-mortem they died in this man's *drosky* whilst trying to get back to Akscha. He remembered that both were exceedingly short of breath. Unfortunately for the veracity of this account our *isvostchick* was very fond of *vodka*, as we experienced after leaving Tschinkantsk—he driving very recklessly and eventually dashing up a high bank and upsetting the carriage on the top of us!

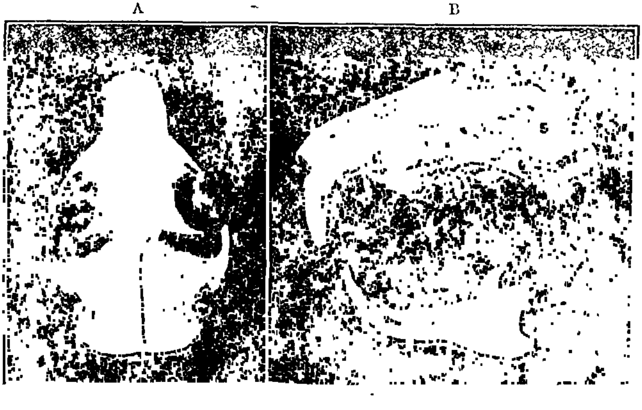
From Tschinkantsk we went to Arabulak—a "village" consisting of one solitary post-house, and looked after by a Cossack family. Here we stopped overnight. The country between Tschinkantsk and Arabulak, as well as the high hills surrounding the latter place, abounded in tarbagans. Our party divided up, and we inspected hundreds of holes, but found no trace of sick or dead animals—not even

during the next six hours we did not see more than five tarbagans. We then returned to Borsja

In the afternoon (July 25th) we went out all around the neighbourhood of Borsja, and although we inspected many holes no trace of a sick animal was found. On July 27th a dead tarbagan was found four versts away. We judged the animal to have been dead some 48 hours. The lymphatic glands were dark in colour, but not enlarged, whilst the spleen was double its normal size. Full bacteriological examination, however, did not reveal any bacillus pestis. On July 29th we all returned to Manchouli, it having been decided that the Chinese expedition should pursue further investigations in Mongolia. While at Borsja we performed experiments to try and ascertain if cannibalism was common among tarbagans. In one of these an animal was starved; after some days a dead animal was introduced into the same cage, but at the end of five days the carcass had not been mutilated. I wish to take this opportunity of expressing my indebtedness to Professor Zabolotny for his unfailing courtesy on all occasions when I had the pleasure of being associated with him.

Work in Mongolia, August 4–18th, 1911.

FIG. 4.



Skull of a tarbagan A, As seen from above, and B, laterally

On August 4th we left Manchouli for Mongolia. Our party and equipment consisted of three medical men—Drs. Ch'en, Tsang, and myself; one interpreter, who spoke Russian, Mongol, and Chinese; one sergeant and six mounted policemen (Chinese); one Finn tarbagan hunter—this was the hunter who caught, in the previous April, the 12 tarbagans for the International Plague Conference; two carriages; three carts for tents, baggage, provisions, &c.; 19 horses and ponies. Our laboratory equipment consisted of two microscopes, media for use, traps and snares for tarbagans, cages, apparatus for experiments with fleas, &c. The weather was good all day, and in the evening we encamped at Tarbagan Ta Hu, 30 li south-west of Manchouli, 1 li equalling ⅓ English mile. The water in a lake close by was briny, and we had to depend on the stock brought with us. Swarms of mosquitoes were encountered here, mostly Culex, but also A. maculipennis.

(*a*) *Charbada.*—On the following day, August 5th, we reached Charbada—a village 63 li south-west of Manchouli. The country *en route* showed nothing but long grass and tarbagan mounds. From inquiries made among these Mongols, I learnt that there had never been any outbreak of disease resembling human plague in their midst. Nor could I obtain any word of disease among the tarbagans: the country in which they had lived for many years past abounds in tarbagans, yet they have never noticed the animals dying. We ourselves laid traps and caught several tarbagans, but none of them showed any signs of disease. We scoured the neighbourhood for remains of the animal—e.g., bones, skulls, carcasses, but could find none.

Leaving Charbada, we made our way backwards along the banks of the river Kerulen, and arrived at Kulun See—a large shallow lake of semi-alkaline water. On the way we found some good camping grounds where there was fresh water. At these places we saw collections of tarbagan skeletons, each numbering from 50 to 80 sets of bones, lying in heaps—evidently the remains of animals which had been skinned by the hunters, who had afterwards thrown away the carcasses. At Kulun See we camped with another colony of Mongols. Here again we could get no history pointing to plague either among the Mongols or among the tarbagans. In the country around, although plenty of tarbagan holes were met with, few of the animals were seen, and our traps seldom caught any. The country had been used for pasturage by the Mongols and large stretches had been fired. From this it would seem probable that, when food becomes scarce in one region, the tarbagans migrate to regions where food is plentiful.

From Kulun See we proposed to go to Abagaitui (Siberia) by way of Dalai Nor, but our guide informed us this was impossible, as it would mean crossing mountains where there was no water. (Dalai Nor is a village 28 versts east of Manchouli, and contains a coal-mine supplying coal to the railway.) We therefore returned to Manchouli, reaching there on August 31st.

The Tarbagan or Marmot (Arctomys Bobac, Schreb).

The species to which the tarbagan belongs is known in America as the woodchuck (Arctomys monax). The Russians call it "szuriok" and the Chinese "Han T'a," but the name most familiar is the one adopted by the members of the International Plague Conference—namely, "tarbagan"—a term derived from the Mongols.

The marmots belong to the order of rodents, and are classed under the simple-toothed variety. They possess the following common features: (1) the presence of four molars on each side of the lower jaw; (2) the presence of five molars on each side of the upper jaw; (3) the zygomatic arch is formed principally of the malar bone and not of the maxillary bone.

The particular variety of marmot found in Manchuria and Mongolia is identified as Arctomys bobac, Schreb (or the true marmot). (Figs. 3 and 4.) The following are some of its distinguishing features:—

1. The body is stout and the limbs are short. 2. The tail is bushy and comparatively short, being about one-half the length of the body. 3. The head is wide and short and there are no cheek pouches. 4. The eyes are large and full. 5. The ears are small and more or less rounded. 6. Of the five toes, the thumb is rudimentary, being supplied with a flat nail, whilst the claws of the remaining four are long and exceedingly sharp. 7. The rows of molar teeth are placed nearly parallel to each other, both in the upper and lower jaws. 8. The fur is of moderate length and of a fine texture The general colour tends to change at different seasons of the year, varying from a light greyish brown in the spring to a reddish brown hue in the late autumn. On the back and around the eyes the fur is darker in colour. 9. The length of the adult animal exclusive of tail varies from 15 to 18 inches (37 to 45 cm.). 10. The weight of the adult animal varies from 9 to 12 lb. (4100 to 5400 grm.), being greater as the hibernating season approaches.

After returning to Manchouli from Mongolia, a series of morning and evening temperatures were taken on these animals by us. The temperature taken per rectum presented wide variations in different animals and in the same animal at different times—even in apparently perfect health. Thus, in some it was found to be 95° F., in others 96°, in others again 97°, and so on until in one animal 107·6° was registered. This last case was particularly interesting in that this temperature was taken soon after capture. It died, however, 20 minutes after the temperature was taken, and 61 minutes after capture. At the post mortem nothing abnormal was found. In one of the animals the temperatur varied from 98·5° to 104·8° within the space of three days.

[The matters next dealt with were: (*a*) The wide di tribution of the marmot in the northern hemisphere (*b*) the habits of the tarbagan; (*c*) habitat; (*d*) hibernation (*e*) the method of catching the tarbagan and (*f*) the killin and skinning; (*g*) the tarbagan in commerce; (*h*) th tarbagan in captivity; and (*i*) forceps for handling th tarbagan. Then followed:—]

(*j*) *Parasites of the tarbagan.*—In its natural state th tarbagan harbours two kinds of blood-sucking arthropods—namely, the flea and the tick. The fleas were more numerou on the animal when freshly caught than after it had been i captivity for some time. Most of the fleas were caught i the groins, but often they were distributed over the whol body. The ticks were usually attached to the eyelids, but o one occasion we found two ticks on the abdomen and non on the eyelids. The number of fleas per animal varie greatly even just after capture. For example, we caught 9 fleas on a tarbagan at Charbada; the fleas on tarbaga No. 18 were noted as numerous; on tarbagan No. 23, thre days after capture, no fleas were found, but only four smal ticks and one large tick; on tarbagan No. 28 two fleas an two ticks were found. All the fleas were of the sam species—namely, Ceratophyllus silantievi, Wagner, 1898. append a short description taken from those we collected.

Fleas. Ceratophyllus silvantievi.—An eyed, single-combe flea of large size. Of six males, the shortest was 1·97 mm long, the longest 2·34 mm., whilst the average length wa 2·2 mm.; of 13 females, the shortest was 1·48 mm., th longest 3·07 mm., whilst the average length was 2·82 mm The eye is small, and the antennæ are well developed; th base of the antenna is situated at some distance directly above the eye, and the antenna when lying in the groove is directed downward and backwards. There are three bristles, one in front of the other, anterior to the eye. The maxillary palps and mouth parts (epi-pharynx, mandible, labium) are long and well developed. Springing from the posterio border of the first thoracic segment is a comb consisting of nine bristles on either side. The mesosternite has a vertical thickening (bar). The inner aspect of the femur is studded with numerous hairs. The posterior border of the hind tibia presents six pairs of bristles. The last joint of the tarsus has six bristles on either side, and the claws are fairly long. There are nine bristles inserted on either side near the posterior border of the tergal plates. The antepygideal bristles are three in number on each side.

(*k*) *Biting experiments with fleas and ticks obtained from the tarbagans.*—The insects were removed from the tarbagans directly the animals were caught, and were placed in test-tubes. The following experiments were carried out by us when in Mongolia, and later on our return to Manchouli. As will be readily understood, the conditions did not permit of detailed and prolonged experimentation, and this record is given merely as a preliminary communication on the subject.

Experiment 1.—When at Charbada, some six fleas in a test-tube, immediately after their removal from the tarbagan, were given the opportunity of biting one of us. Even after several minutes none of them had bitten.

Experiment 2.—August 10th, 1911: Ceratophyllus silantievi, 1 male, starved for three days. Then given facilities for biting the arm of one of the party. The insect moved about for some minutes before biting. It chose a spot in a fissure of the skin, and plunged its proboscis deep in. While sucking its body was tilted upwards, and the insect was seen to increase in bulk. It remained thus for eight minutes, and then, having withdrawn the proboscis, fell on its side. Afterwards it began moving around less actively than before. The person bitten experienced no pain and very little sensation, both when the flea pierced the skin and during the time the insect was sucking. After the flea had withdrawn its proboscis, the site of punctur [illegible] naked eye, and with the aid of a hand-lens a [illegible] was seen to have taken place from the puncture. There was no [illegible] swelling or irritation.

[Two other similar experiments with fleas were also described.] The ticks (species rhipicephalus) were collected in test-tubes, and similar experiments to those with the fleas were carried out. In no case did a tick bite the arm of a human being, although the tick used in one experiment had been starved for eight days.

Evidence Associating the Tarbagan with Plague.

The tarbagan has been said to suffer from a chronic form of plague not unlike the form seen in rats. From time to time epidemics have been reported as occurring among the tarbagans, causing them to die in thousands. It has been said that hunters easily recognise the sick animals—these often being driven out from their holes to wander about aimlessly until they die The piteous state of these animals has been graphically described If a human being takes plague, and has eaten of the flesh of the tarbagan—a very common food among the Mongols and Cossacks—it has been stated forthwith that this is the source of infection Indeed, whenever a case of human plague occurs in a remote district of the tarbagan country, it is stated almost invariably that the disease has resulted from the eating of tarbagan flesh Some of the epidemics referred to as occurring among the inhabitants of the Kirghiz Settlements were said to have been associated with a disease in camels, and one case of human plague was said to have followed the consumption by the patient of the flesh of a camel stricken with plague To quote further examples would be useless and to mention individual authors invidious

It is my purpose to review the facts which have so far been ascertained bearing upon the relationship of the tarbagan to the outbreak of plague in human beings It need scarcely be said that before a diagnosis of plague is established a complete bacteriological examination must be made It has been definitely established that rats suffer from plague and from them the disease is conveyed to man The chronic form of plague has been found among the gophers or ground squirrels (Citellus beecheyi) of the mountains of Western America by McCoy Mice and guinea pigs are susceptible to artificial infection with Bacillus pestis Strong and Teague, Zabolotny, Dujardin, Beaumetz, and Mosny have shown that the tarbagan also is susceptible and Shibayama has demonstrated that Spermophilus citellus the small species of marmot common about Mukden, is susceptible to plague though not so susceptible as the rat

Since these rodents are susceptible to plague and since the disease occurs in nature among rats and ground squirrels *a priori* it is conceivable that it occurs among tarbagans in nature Let us examine the evidence available to establish this as a fact An epidemic among the tarbagans was reported in July 1911 and the Russian and Chinese expeditions at once visited the country where this epidemic was supposed to exist Not only did the expeditions fail to discover a single diseased tarbagan but inquiries made by us directly from the hunters showed that they knew nothing of the alleged epidemic In the experience of these hunters not only had no epidemic ever occurred among the tarbagans but they had never even seen sick ones In Mongolia the Chinese expedition had similar results, nor could any news be obtained of disease past or present from the Mongol hunters In passing I would emphasise that information was sought by us direct from hunters who were experienced men and who had spent their lives living and hunting in the country where the tarbagan abounds Moreover, two of the police who accompanied us on our Mongolian expedition were formerly tarbagan hunters , and the Finn hunter whom we took with us had been hunting regularly for the past five years, and could recall no case of tarbagan disease

Dr Chuin in his paper at the International Plague Conference already referred to stated

> I had several talks with the marmot hunters and inquired whether they knew of the occurrence of any cases of sickness such as blood spitting or of sudden death during their hunting season on the hills They replied that they had never known of such cases either on the hills or on their return journey and that only at Dawoolya Manchouli or other towns did the plague attack the marmot hunters and others

The inquiries we made on this point from the hunters elicited the same information We did not hear of any case of plague having occurred amongst them while on the plains It is well to state here that although the tarbagan hunters dispersed in pursuit of their business staying away for one or several weeks they usually reassembled at the regular camps there to skin the animals captured Moreover although millions of tarbagan skins were exported yearly to Europe and thus handled by hundreds of people from the hunter and the railway porter to the factory labourer no case had ever been reported of plague infection in human beings during the transit of such skins It is also very doubtful whether plague occurs as a result of eating plague infected flesh As bearing upon this question, the following may be quoted

> Ir
> pne
> bact
> perf
> infe
> ence
> of p
> if the intestines are sometimes secondarily involved this condition in human beings must be also a very rare one (Strong and Teague)

Moreover referring to the disease in camels mentioned above, Mr Shuropof, a veterinary surgeon, who investigated the possibility of this animal suffering from plague, concluded that the camel was entirely insusceptible to the disease He thinks that the observations made in the Kirghiz Steppes must be received with doubt, and that possibly the organism isolated from the dead camel was the Bacillus bipolaris plurisepticus and not the plague bacillus * The only definite proof that tarbagans in nature are affected with plague is obtained from the animal caught by Issaief in June at Scharasone, and examined by Zabolotny

To conclude that a man whose occupation is that of a tarbagan hunter, and who takes plague, has been infected from a tarbagan is comparable to concluding that a man who sells rice and who develops plague has been infected from the rice In the latter case it is possible that the rice, through the rat flea was the source of infection , but if, without some proof that this were so, the statement was made such a conclusion would be at once condemned as unjustifiable *From the above it seems to me a pity that* responsible authorities and medical men should be so obsessed with the unestablished idea of the great infectivity of the tarbagan as to place hindrance in the way of transporting by rail live healthy tarbagans for important scientific research at our headquarters laboratory at Harbin, an experience which I had in March of this year

Conclusions

1 Even though the tarbagan occasionally suffers from plague the epizootic is never extensive and the animal does not play nearly so important a role in the spread of plague as does the rat Indeed its direct relationship to human plague may be considered negligible Moreover, the mode of living and habits of the tarbagan are very different from those of the rat , for example while the rat is a more or less domestic creature in close contact with man, the tarbagan is the reverse

2 From the writings of Russian authorities it appears that plague has existed for many years in various parts of Siberia, sometimes in the bubonic form sometimes in the pneumonic form These places may be looked upon as endemic foci In 1910 it is believed that pneumonic plague appeared in the Russian Ural district long before it made its appearance at Manchouli, and developed into that great Manchurian epidemic During the latter half of 1911 this form of plague was present in the Kirghiz Settlements In these districts from October, 1911 to February, 1912 over 200 cases of plague occurred Throughout Manchuria no case of plague in man or animals has occurred since the epidemic of plague pneumonia in 1911

3 From this report it is obvious that statements of the occurrence of plague among men or animals should be believed only when they come from responsible sources—that is, after proper medical and scientific investigations

THE PRESENCE OF ACETONE BODIES IN THE URINE AND THEIR CLINICAL SIGNIFICANCE

BY J E PIPER M B , B S

THE points of interest which it is intended to discuss in the present paper arose from work undertaken primarily with the view of establishing an accurate and reliable clinical method of estimating acetone in urine

It was thought possible to develop the sodium nitroprusside reaction simultaneously in the urine to be investigated and in a watery solution of acetone of known concentration—i e , 1 part per 1000—or a normal urine to which 1 part of acetone per 1000 had been added The developing colours were then to be estimated in a Dubosque colorimeter, and if the urine under investigation gave twice the colour intensity of the 1 in 1000 solution then its concentration would be 2 of acetone per 1000 parts Preliminary experiments proved that the colour developing was indeed proportional to the amount of acetone present, and that for two solutions of different strengths the proportionality in the colour concentration remained the same as the colour test proceeded to develop. For example, two solutions, A and B, were prepared.

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* Vratch No 62 Dec 31st 1911, quoted in THE LANCET March 9th, 1912 p 683

Solution A consisted of 20 c.c. of 1/1000 acetone solution, 20 c.c. of NH_3, 1 c.c. of sodium nitroprusside (5 per cent.).

Solution B consisted of 20 c.c. of 1/2000 acetone solution, 20 c.c. of NH_3, 1 c.c. of sodium nitroprusside (5 per cent.).

The readings were taken at five-minutes intervals:—

End of 5 min.	A : B :: 10 : 20·2
„ 10 „	A : B :: 10 : 20·3
„ 15 „	A : B :: 10 : 19·3
„ 20 „	A : B :: 10 : 20·3
End of 25 min.	A : B :: 10 : 20
„ 30 „	A : B :: 10 : 20
„ 35 „	A : B :: 10 : 20·4
„ 40 „	A : B :: 10 : 20·4

In the case of the nitroprusside reaction for acetone the permanganate colour develops slowly and the colour deepens for about the first 15 minutes at ordinary room temperature. It was found that for two acetone solutions A and B, to which the colour reaction had been applied simultaneously, as shown above, if after five minutes the depth of colour produced in B proved twice as strong as that produced in A, then after 10 minutes and 15 minutes the same relation would still hold. But if one used greater variations in strength—e.g., one solution four times the strength of the other—the readings were not so accurate, nor did the ratio remain the same so long.

The idea of judging the amount of acetone from the intensity of the nitroprusside reaction must have suggested itself to many—e.g., Dr. E. Mellanby[1] and Dr. E. R. White.[2] An alternative method would be to dilute the urine 50, 100, 150 times, and so on, to find that dilution in which a reaction was just obtainable, and assume that the diluted urine then contained 1 in 10,000 parts of acetone, which is the smallest ratio in which acetone reacts. None of these methods, however, are applicable. Experience has shown that there is no such thing as a urine containing only acetone. All the urines examined when fresh contain 70 per cent. or more of the acetone as diacetic acid (acetoacetic being the chemical nomenclature).

In describing his modification of the nitroprusside reaction, Rothera considered that diacetic acid gave an orange-red colouration with that reagent. He obtained his diacetic acid from a specimen of the ester, which had been carefully prepared in the laboratory and had the correct boiling point; and it was thought unlikely at the time that there could be any impurity present, which would affect the reaction in great dilution. Experience with urines giving the ferric chloride reaction for diacetic acid showed that the nitroprusside reaction was, if anything, a bluer purple than the pure acetone reaction, and not redder as would have been expected had the diacetic reacted orange red.

Further, on using the colorimeter method for estimating acetone in a natural acetonuria results were obtained which were many times higher than those given by the Folin method.[3] For example, a urine obtained from the Children's Hospital gave only 2 parts per 1000 of acetone by the Folin method, but gave 30 parts per 1000 by the nitroprusside method. It was evident then that some other body than acetone was present in these urines, even though no diacetic acid could be found by the ferric chloride test.

The first possibility, and the most probable one, was the presence of diacetic acid. The laboratory stock of diacetic ester was consequently submitted to purification through the bisulphite compound and on recovery was used to prepare diacetic acid, which is itself very unstable and cannot be kept. The acid prepared from the purified diacetic ester now gave the blue permanganate colour with nitroprusside so typical of the naturally occurring acetonuria. This preparation of diacetic acid also gave the typical colouration with ferric perchloride, but on dilution a marked reaction was still given by the nitroprusside after the ferric perchloride had ceased to react. Further, a sample of urine, which gave on distillation 2·6 grm. of diacetic acid, estimated as acetone, did not react at all with ferric perchloride, showing that the latter reagent is far less delicate than the nitroprusside.

There is every reason to believe, then, that most acetone urines are really diacetic urines, in which a small proportion of the diacetic acid has broken down to form acetone.

Experiments have been carried out for the purpose of estimating approximately the order of delicacy of the nitroprusside reaction with diacetic acid. The amount of acetone present is first estimated by the Folin[4] method. Next the urine is distilled with acid and the diacetic acid reckoned in terms of acetone (Messinger-Huppert). Then the urine is diluted until the reaction with nitroprusside is just visible.

Experiment 1.—With urine collected the same day as examined. The urine gave faint reaction with a dilution of 1 in 100. 15 c.c. of the urine on distillation gave 0·66 grm. per litre of acetone. Therefore, a visible though faint reaction was obtainable with 1 part in 133,000.

Experiment 2.—Dilution of 1 in 250 gave faint reaction. The Messinger-Huppert method gave 1·65 grm. per litre of diacetic acid estimated as acetone. Therefore, a faint reaction obtained with a dilution of 1 in 130,000.

Experiment 3.—Dilution of 1 in 150 gave faint reaction. The Messinger-Huppert method gave 1·5 grm. per litre of diacetic acid estimated as acetone. Therefore a faint reaction was obtained with a dilution of 1 in 100,000.

Other experiments also served to prove that a reliable reaction can be expected with a dilution of 1 in 100,000, and this might be taken as a limit for working purposes. So that in a fresh urine (which nearly always contains at least 80 per cent. of the acetone bodies present as diacetic acid) this body can be estimated quantitatively by a process of dilution.

Two interesting papers have recently appeared showing the great frequency of acetonuria in children. One was written by Dr. White[5] and the other by Dr. Robert Frew.[6] All the children's urines examined by me have been typical diacetic urines with only small amounts of acetone. Therefore they are of the same type as the urines, quoted by Otto Folin,[7] which were obtained from diabetic patients, and post-anæsthetic urines have given similar results. Needless to say, it is of the utmost importance to examine all such urines fresh, as the diacetic acid rapidly breaks down into acetone.

Most of the work I have done in investigating acetone bodies has been directed to the estimation of the response of the human being to anæsthetics. In this list of anæsthetic cases there are not any emergencies; all the cases on which observations have been made were in the wards three or four days before operation and had a thorough and careful preparation. All Catholics had their last meal at 11.30 P.M. on the previous evening and all Protestants at 3.30 A.M. on the morning of the operation. All operations were done in the mornings. All anæsthetics were given by the open ether method, preceded by induction with ethyl chloride. All patients had morphia gr. 1/8 and atropine gr. 1/150 hypodermically one hour before operation. So that in making comparisons of the responses of different individuals to anæsthesia by ether there was very little chance of error either from the preparation or from the operation.

Eighty specimens of post-operative diaceturia were examined by the Folin method for the estimation of acetone and by the Messinger-Huppert method for the estimation of total acetone bodies. Cases were examined previously to operation for acetone bodies and any patients with acetone bodies in the urine were disregarded, or else an estimation of the urine was made both before and after operation. The original idea was to find if there was any diagnostic value in the proportion of acetone bodies present as acetone. As already indicated, the greater proportion of the reaction to nitroprusside in Rothera's method is due to the diacetic acid present, and the larger portion of the acetone bodies in the average urine is in the form of diacetic acid.

At this point two observations by Folin are worthy of attention.[8] First he claims that a large amount of acetone can be present without giving the acetone reaction, but he must be referring to the original method of using nitroprusside, for the Rothera method will react with a dilution of 1 in 10,000. Next he claims that von Jaksch, in 1883, did not prove that diacetic acid was present in diabetic urines, and since that time no one has ever proved that diacetic acid is present, but at the same time he himself has no doubt that it is there.

Rothera and I prepared diacetic acid from the ester, and this preparation gave exactly the same reaction to nitroprusside that the diabetic urine did which contained (or was thought to contain) diacetic acid, and our diabetic urine contained no oxybutyric acid which Folin maintains was the chief reacting agent in von Jaksch's experiments This is not a rigid proof that the reacting substance is diacetic acid, but it is a strong one Again, all previous experimental works and the conclusions published therefrom have been based on the amount of acetone present in the urine My own experiments seem to prove that the amount of acetone does not vary a great deal, a very large percentage of cases containing between 0 3 and 0 35 grm per litre, while the total amount of acetone bodies ranged from about 0 45 to 3 36 grm per litre Of course, some urines contained as little as 0 1 grm per litre of acetone, and 0 28 grm of acetone bodies, but such cases were exceptions and were not typical

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[1] THE LANCET, July 1st, 1911.

[2] Australian Medical Journal, vol. xvii., 10.

[3] Folin: Journal of Biological Chemistry, vol. iii., p. 177.

[4] Folin: Loc. cit.

[5] Australian Medical Journal, Oct. 20th, 1910.

[6] THE LANCET, Nov. 4th, 1911.

[7] Journal of Biological Chemistry, vol. iii., p. 177.

[8] Journal of the American Medical Association, 1907

The persistency with which the total amount of acetone ranged between 0 3 and 0 35 grm per litre gave the impression that any amount above that is excreted by the lungs, &c When the total amount of acetone bodies was low the percentage of these bodies present as acetone was usually high (60–80 per cent), when the total amount of acetone bodies was high the percentage of acetone present was low (20–30 per cent) Two cases had 0 64 grm of acetone per litre, but these were very atypical

The kind of operation was found to have no noticeable effect, all the operations being pelvic ones Removal of ovaries or absence of ovarian tissue previous to operation did not seem to affect the output of acetone bodies Carcinomatous cases varied, and the data are hardly sufficient to enable deductions to be made

The presence or absence of albumin did not seem to affect the results The length of the operation did not seem to make any difference, the greatest amount of acetone bodies being obtained from a patient who was simply curetted an operation involving 20 minutes' anæsthesia, and the second highest after an operation of 20 minutes, thus confirming the results published by Wallace and Gillespie[9] Beesby[10] claims that there is no relation between delayed acetone excretion, duration of operation, and amount of anæsthetic used which is a corollary to the lack of relation between the production of acetone bodies and the length of operation Beesby states also that ether usually produces a greater amount of acetone bodies than chloroform (or rather he means that a greater amount of these bodies is excreted in the 24 hours following the operation) but that chloroform poisons the excretory cells of the kidneys and delays the excretion of acetone

I have had only six cases with chloroform, and have found [illegible] of acetone bodies excreted in [illegible] less than the average total [illegible] I have found that the acetone reaction remains in the urine for a longer time after operating and can also verify his statement that the elimination of acetone bodies is expedited by free purgation

Again, the total amount of urine passed in the 24 hours does not bear any relation to the amount of acetone bodies present, for the patient who passed the largest amount (38 oz) had 1 45 grm per litre, and the patient who passed the least (7 5 oz) had 1 33 grm per litre, and patients who had no acetone bodies present after operation, as the result of treatment with pancreatin, ranged from 8 to 21 oz

In estimating the amount of urine one must watch the class of case, for large tumours may press upon the ureters causing hydronephrosis One such patient passed 22 oz four hours after operation, and she was carefully catheterised immediately before being anæsthetised The degree of fatness does not bear any relation to the amount of acetone bodies present, but there is a definite tendency for young women to have greater amounts than older ones The highest amounts occurred in fairly thin women between the ages of 20 and 30, but I think the age the more important factor

Contrary to all records of similar investigations I found septic cases produced smaller amounts of acetone bodies than non septic cases if one excludes acute septic cases such as acute appendicitis and acute pyosalpinx, which usually have acetone bodies before operation

Again, patients who had gone longest without food produced the greatest amount of acetone bodies if all other things were equal This I proved by putting cases operated on twice first on the list on one day, and last on the list on another day, and *vice versâ* Further, cases were taken in which the patients were given absolutely new and uncontaminated ether, and compared with cases who were given ether which had been exposed to the air for some days and made impure by the addition of a little water, the anæsthetic being given by the same anæsthetist It was found that there was a proportionately greater increase in the amount of acetone bodies after the contaminated ether No attempt was made to try such experiments with chloroform, but one may be excused for thinking that anything which would increase the toxicity of chloroform would make such investigations inhuman and dangerous to life But the observations on ether lend some support to the statement that deaths under chloroform in the South African war were due to the *impurity of the drug*

But there were cases in which the large amount of acetone bodies present could be attributed neither to the anæsthetic nor to the previous starvation In these cases there was one factor present which could not be estimated in figures, and that was the mental anxiety of the patient One patient who had 3 36 grm per litre, the largest on my list, was an exceedingly nervous neurasthenic individual She had 20 minutes' anæsthesia only Her actual figures were—acetone, 0 54 grm per litre, total acetone bodies, 3 36 grm per litre, percentage of acetone bodies present as acetone 16 per cent Another patient of the same type had the following figures total acetone bodies, 2 16 grm per litre, acetone 0 55 grm per litre, and percentage of acetone, 24 per cent The second highest case on my list had chloroform for 20 minutes, and there was nothing except her mental state to account for her figures, which were total acetone bodies, *2 61 grm per litre, acetone present, 0 64 grm per litre*, and percentage of acetone, 24 5 per cent

This proof of mental influence is of the greatest importance when we remember that diabetes occurs so commonly in neurotic individuals and has been known to follow severe shock, whether reaching the vital parts in the medulla from the peripheral, sensory, or sympathetic nerves, or descending to them through the organs of special sense

These examples of mental shock are closely allied to the following examples of physical shock The following is an extract from Burrage's "Gynæcological Diagnosis" "Baumgarten and Poffer[11] claim that acetonuria is present in every case of extra uterine pregnancy They examined the urine of 100 patients and were able by detecting acetonuria, to distinguish between extra uterine pregnancy and other uterine tumours" The above has not proved correct in my wards, but it opens up in my mind important work In my wards recently was a true tubal pregnancy, with the fœtus *in situ* and the amnion unruptured, and although this patient was anæsthetised and the urine examined on two separate occasions, no trace of a reaction was obtained by the nitroprusside reaction Again, another patient with acute double pyosalpinx had on estimation—total acetone bodies, 1 11 grm per litre, acetone, 0 33 grm per litre, equals 29 per cent as acetone In every other case of ectopic gestation except the one mentioned above (which was unruptured) acetone bodies were found and one such case had marked glycosuria as well as acetonuria

The readings on estimation were total acetone bodies 0 39 grm per litre acetone 0 1 grm per lit [illegible] of acetone 25·6 per cent Specific gravity of urine 1040 gave a history suspicious of under an anæsthetic in the o[illegible] nothing and simply curetted pancreatin before and again operation she had no sugar acetone bodies 0 21 grm per percentage 43

Two days later she had another acute attack of pain in the lower abdomen and examination six hours later showed a return of glycos[illegible]

[illegible]

already have acetonuria excrete a large amount of aceto[illegible] bodies after operation but not excessively large—an observation made previously by Beesby in regard to acetonuria

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[9] THE LANCET Dec 5th 1908

[10] Brit Med Jour, May 12th, 1906

[11] Wiener Klinische Wochenschrift 1906 No 12

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

On Tuesday, August 12th, a highly successful dinner was held at the Hotel Cecil by the Sections of Rhino-Laryngology and Otology, and was presided over by Sir StClair Thomson and Mr. Arthur H. Cheatle. The toast of "The King" having been proposed by Mr. Cheatle, "Otology and Laryngology" was proposed by Sir Thomas Barlow and Sir Rickman J. Godlee in felicitous speeches, and replied to by Comm. Professor Dr. G. Gradenigo and Dr. Luc. Sir StClair Thomson and Professor Urban Pritchard then proposed the health of "The Guests," and Professor F. H. Bosworth, Professor Dr. Gustav Alexander, Dr. Delsaux, Professor Dr. H. Mygind, Dr. Castex, Professor Gutzmann, Professor H. Burger, Dr. L. Polyák, Professor G. Ferreri, Professor I. Kubo, Professor S. von Stein, Dr. J. Cisneros, and Dr. F. Nager replied. The toast of "The Ladies" was proposed by Sir Felix Semon, K.C.V.O., and Mrs. Dundas Grant replied. The health of "The Presidents of the Sections" was proposed by Professor S. Neumann and Professor von Eicken, and in reply Mr. Cheatle and Sir StClair Thomson referred to the work of the secretaries in connexion with the scientific work of the sections and the ladies who had so successfully arranged the social programme. Mr. W. Douglas Harmer, in reply, expressed the pleasure of the English members in meeting so many distinguished foreign visitors and hearing of their work in the fields of rhino-laryngology and otology.

The Mayor and Corporation of Bath extended a very hearty welcome to about 200 members of the Congress and their ladies, who visited that city on August 13th on their invitation. A special train provided by the corporation conveyed the guests to Bath, and on their arrival they proceeded to the bathing establishment in motor cars. Bath doctors, acting as guides, conducted the party, in suitable groups, over the baths, and explained the methods of treatment. A luncheon followed at the Guildhall, presided over by the mayor, Mr. Councillor Cooke. Later the visitors were taken in motor cars to view the chief objects of interest in the city and the surrounding neighbourhood, and a reception was afterwards held at the Roman Promenade by the members of the local medical profession. A special train conveyed the guests back to London, and brought an interesting and instructive visit to a close.

The Tutmonda Esperanta Kuracista Asocio (Universal Esperanto Medical Association) held its preliminary meeting on Friday, August 8th, in the Geological Laboratory of the Royal School of Mines. Professor G. Jamesón Johnston presided, and was supported by Dr. G. F. Johnston, the secretary of the association. The address of the President, On the Need for a Common Language for Mutual Understanding in Congresses and the Use of Esperanto in Medicine, was listened to with great interest, and short speeches were afterwards delivered by foreign members of the association in their native language. Among those who spoke were Dr. Nemser (Russia), Dr. Terricabras (Spain), Dr. Duigon (France), Dr. Rothschuh (Germany), and Dr. Tarnowski (Poland). On Monday, August 11th, the association again met, and several interesting papers were read in Esperanto. Dr. Rothschuh discussed the question of the relation between the general practitioner and the balneologist, and Mr. F. W. Alexander (London), who has been acquainted with Esperanto for a year only, ably described the use of electrolytic disinfecting fluid (electrolysed solution of magnesium chloride) in the borough of Poplar. Dr. Nemser, who read a highly technical paper on the alkalinity of the blood, also read the paper by Dr. Sidlovskij (Russia) in the unavoidable absence of the latter, giving the result of an inquiry concerning backward children in the Moscow schools. A communication on Sounding the Duodenum was also read by the President in the absence of Dr. Robin, of Warsaw. After the formal meeting many remained for general conversation on various topics, one of interest being the forthcoming annual congress of the Tutmonda Esperanta Kuracista Association, which will take place in connexion with the Ninth Universal Esperanto Congress at the University of Berne during the last week of August.—A successful reception was given to the Esperantist medical practitioners attending the Congress at the Esperanto Club, St. Bride's Institute, St. Bride's-lane, Ludgate Circus, when not only were there a number of Esperantist medical men present, but also many foreign non-Esperantist medical men who were attracted there by the utility of the Esperanto international language.

THE SECTIONS.

Section I.—ANATOMY AND EMBRYOLOGY.

Friday, August 8th.

President, Professor Arthur Thomson (Oxford).

The discussion was devoted to

The Early Stages of the Human Ovum,

a subject around which many debates have taken place and which will necessarily furnish material for argument and speculation until some day in the far distant future when the whole sequence of human development is made clear by the study of a series of actual specimens. At present our knowledge, though rapidly accumulating, is fragmentary: very large gaps exist in the story of the early stages of the human ovum. It is in the filling of these gaps that imagination plays its part and the possibilities for debate come in. Where human material is deficient it is possible to bridge the interval between one known stage to the next by taking stages from the well-studied development of some of the lower animals. The present debate showed that there was much difference of opinion as to what type should be taken for providing the absent stages of the story of man. The report was furnished by Professor A. C. F. d'Éternod (Geneva), and it represented a most exhaustive summing up of the researches of a man who has given daily thought to this question for a space of over 30 years, and the gleanings from the labours of every other worker in the same field. It was only a brief extract that Professor d'Éternod was able to give in the time at his disposal. The discussion was mainly evoked, as it is certain to be in this subject, over the filling in of the gaps in the known human stages.

Professor T. H. Bryce (Glasgow) expressed a general agreement with the ideas of Professor d'Éternod, but he thought that too large an appeal had been made to the amphibian type of development in supplementing our knowledge of man. In many ways the sauropsidan phases appeared to Professor Bryce more satisfactory stages to draw upon.

Mr. J. W. Jenkinson (Oxford) agreed with Professor Bryce's criticism, and gave a clear exposition of the points in which he differed from the conclusions of the report.

Further material was produced by the President in the shape of an embryo of known history and in excellent histological condition. Reconstruction models were shown of the whole embryo and its envelopes, as well as more detailed portions of its structure, and a large series of very beautiful lantern slides of serial sections was demonstrated. The cavity of the ovum was rather less than 2 mm. in diameter and the embryonic rudiment was proportionately small, so that the completed study of this most recent specimen is certain to add to the knowledge of early human stages.

The independent papers were then read.

Professor C. F. W. McCLURE (Princeton, N.J., U.S.A.) demonstrated a large series of reconstruction models and lantern slides illustrating the

Development of the Lymphatic System in Fishes.

Embryos of two species of trout had been exhaustively studied both in an injected and uninjected condition, and very beautiful preparations had been made from them. The demonstration made particularly clear the facts that in these fish the lymphatic system took origin as tissue spaces which were entirely separate from vascular channels. These tissue spaces enlarged within the developing embryo and neighbouring spaces coalesced, till at length channels were formed. These channels made connexion with the vascular system at a later date, and then might be injected from the blood stream. The growth and coalescence and final opening of these tissue spaces were beautifully displayed in a series of reconstruction models.

Professor G. S. HUNTINGDON (New York) followed with a paper on

The Genetic Relations of Lymphatic and Hæmal Vascular Channels in the Embryos of Amniotes.

In serial sections the speaker showed the differences in the development of the lymphatic system that were displayed in various animal types. The reptile followed very much the lines which Professor McClure had made clear in the trout, for here tissue spaces independent of the hæmal vascular channels were the first origins of the system. In birds a curious difference was demonstrated, for blood cells were developed in the tissue spaces which were ultimately to form lymphatic channels, these blood cells being extruded from the channels when their secondary connexion with the blood stream was once established. In mammals a further variation was seen, for here it was clearly demonstrated that the first lymphatic spaces were formed in the neighbourhood of veins, and that, with the disappearance of the vein, the spaces coalesced and formed a replacing lymphatic channel.

Professor J. A. PIRES DE LIMA (Oporto) gave a paper,

Sur Quelques Observations de Fistules Juxtauréthrales Congénitales.

This was a description of three cases in which the terminal portion of the urethra was abnormal, possessing what was commonly called a double meatus. Other cases recorded in the literature were detailed and the various opinions of authors as to the formation of this anomaly were given.

Mr. JENKINSON then gave his paper upon

The Effect of Centrifuging the Egg upon the Development of the Embryo in the Frog.

From a mass of interesting details concerning the anomalies described it was possible to extract a generalisation which, put crudely, almost amounted to saying that by centrifuging the egg the egg contents became arranged in three zones—an upper lighter, a middle average, and a lower heavier zone. When the embryo developed from such an egg the head end which developed from the upper zone tended to be abnormal, the middle region which developed from the middle zone tended to be but little disordered, while the anal region from the lower zone again showed disturbances.

Dr. MARIE LOYEZ (Paris) then read a paper,

Sur les Follicules Atrésiques et la Formation des Kystes dans l'Ovaire de la Femme.

The work went to show that various types of these cysts existed. Four types were recognised as arising in connexion with degenerated follicles and many were best regarded as true neoplasms.

Professor WALDEYER (Berlin) commented upon the paper.

The meeting terminated in the demonstration by Professor J. T. WILSON (Sidney) of a most beautiful set of slides and drawings of a human embryo of nine somites which appeared to be in perfect histological condition.

SATURDAY, AUGUST 9TH.

Professor G. CARL HUBER (Ann Arbor, U.S.A.) opened the discussion

On the Morphology of the Sympathetic System

by giving a brief abstract of his exhaustive report. Professor Huber discussed the evolution of the more modern ideas concerning the sympathetic nerves, detailed the actual anatomical distribution of the system, and dwelt at some length upon the microscopic features of the various types of ganglia. From a stage of apparent great complexity, however, the speaker evolved order and simplicity by showing that the underlying features were identical in all parts of a system, which morphologically was a unit and not a series of separated entities.

Professor A. M. PATERSON (Liverpool) dissented from this view of unity; he regarded the thoracico-lumbar portion of the sympathetic as a thing altogether apart from the rest of the system and from the central nervous system. This isolated series of ganglia he regarded as being a splanchnic nervous system destined for the unsegmented splanchnic area.

Dr. J. F. GASKELL (Cambridge) then made a most interesting addition to the discussion by reading a paper dealing with the adrenalin-containing chromaffin system, which he insisted must be regarded as an integral part of the sympathetic system. He showed how this chromaffin system was essential to the proper working of the vascular system, how it was developed in common with the sympathetic ganglia, and how in some forms (Hirudineæ) cells existed which were both nervous in function and contained adrenalin substances. Such cells might be considered as ancestors of both systems—the chromaffin system and the sympathetic nervous system; and such cells appeared hand in hand with the development of a contractile vascular system.

Professor J. T. WILSON (Sydney) and Professor C. W. ARIËNS KAPPERS (Amsterdam) also took part in the discussion.

Professor HUBER, in his reply, dwelt upon the highly suggestive character of Dr. Gaskell's communication, and in answer to questions proposed during the discussion expressed his impression that the nervus terminalis might belong to the sympathetic system; and also gave it as his belief that separation of the sympathetic and central nervous system was incorrect.

Dr. AUBREY MUSSEN (München) then gave his paper upon

New Observations on the Pulvinar of Macacus Rhesus.

The investigation had been carried out by means of Dr. Clarke's method, and the speaker demonstrated lantern slides of the very beautiful sections obtained in this way. The outcome of the investigation was a more perfect definition of the anatomical boundaries of the pulvinar and its separation from neighbouring nuclei.

An exhaustive paper upon the Mitochondria in Nerve Cells and the Method of their Colouration was given by Dr. SHIROKOGOROFF (Dorpat).

In the discussion which followed Professor KAPPERS gave a *résumé* of the most recent work upon Nissl bodies and similar granules.

Dr. ALBERT WILSON (London) gave a demonstration with the rather comprehensive title of the Development of the Brain and Eye. The demonstration was based on sections prepared from embryos of 38 days and 8 weeks respectively, and comparison was made in the case of the brain with sections of various specimens of post-natal brains.

Dr. W. H. F. ADDISON (Philadelphia) showed excellent slides of sections of developing Central Nuclei of the Cerebellum. The work was carried out on embryos of rats, and consisted of a careful tracing of the site and origin of the cell constituents of the nuclei.—Professor ARIËNS KAPPERS joined in the discussion, and helped to clear up several points in the morphology of these nuclei.

Professor ARTURO DONAGGIO (Modena) gave his paper on Les Systèmes du Réseau Nervofibrillaire et des Nervofibrilles longues dans les Éléments Nervous des Vertébrés.—Professor WALDEYER discussed the paper.

MONDAY, AUGUST 11TH.

Discussion on the Morphology of the Shoulder Girdle.

Professor R. ANTHONY (Paris) gave a *résumé* of his exhaustive paper on the Shoulder Girdle of Amphibia, Reptiles, Birds, and Mammals. He dwelt upon the innate difficulty of the question, the endless functional modification produced in different types, and the diversity of views held by those who had given most attention to the subject. Next the clav [illegible] and the different members [illegible] lighted or disturbed by the r [illegible] bone. In brief, he regarded it as somewhat analogous to a sesamoid bone, which is developed in membrane more or less in response to stress and strain, and which replaces stage by stage the older precoracoid element of the girdle. The primative girdle he regarded as having a dorsal cartilaginous element (the scapula) and a ventral cartilaginous element. The dorsal element remained undivided, but the ventral element became subdivided into an anterior (precoracoid) part and a posterior (coracoid) part. Moreover, Professor Anthony showed a particularly attractive point in the relation of the deficiency of the limb articular socket to the division between the two divisions of the ventral portion, and demonstrated that this relation held good in the pelvic girdle. In the pelvic girdle he recognised the precoracoid in the pubis and the coracoid in the ischium. Special stress was laid upon conditions (illustrated in reptiles) in which a "fenestrated" coracoid simulated the presence of precoracoid and coracoid, and the true condition of these cases was clearly demonstrated. The modifications produced by ventral union were then discussed.

It was around the real significance of the clavicle that the bulk of the subsequent discussion centred, for Professor T. H. BRYCE (Glasgow) and Professor G. D. THANE (London) were not so ready to cast aside the clavicle as a mere sesamoid bone or as a product of friction or stress; and the presence of cartilarge in the early clavicle and its exact significance furnished material for discussion.

Professor F. G. PARSONS (London) also, by demonstrating the "looking glass" resemblance of the fore and hind limb, appeared to reject the conclusions of Professor Anthony as to the representations in the pelvic girdle of the elements in the shoulder girdle.

Dr. H. RABL (Innsbruck) gave a demonstration of the

Development and Anatomical Condition of the Hæmolymph Glands.

By means of blackboard drawings he made clear the vascular and lymphatic connexions of the glands, taking the developing glands in the embryonic porpoise to illustrate the subject.

Professor HUNTINGDON, in discussing the paper, alluded to the normal inclusion within embryonic lymphatics of blood-cells, and suggested that such glands might in a way be regarded as persistent fœtal characters.

The PRESIDENT read his paper on

The Correlation of Isotherms with Variations in the Nasal Index.

This was but an abstract of a contribution which must necessarily involve a wide resort to statistics, for the generalisation arrived at must be the outcome of very extended observations. In brief, the speaker, regarding the nasal chambers as being in part a mechanism for warming the inspired air, postulated that with a diminished temperature the nasal chambers would need greater development. As a consequence it would be expected that narrow nostrils and large noses would characterise dwellers in cold climates and wide nostrils and small noses those who lived in the tropics. Taking the Americas as a field for investigation, he showed that from the equator to both poles this expectation was fulfilled.

In the absence of Mr. D. E. DERRY (London) his paper on

Some Physical Characters of a Prehistoric Sudanese Race

was read by the Secretary, Dr. ALEX. MACPHAIL. The paper dealt with some skeletons unearthed at Gebel Moya during the archæological expedition organised by Mr. Henry S. Wellcome. The bones were those of a tall negroid race which showed affinities with modern Nilotic tribes and which removed the incisor teeth in conformity with the habit of wearing a rather massive lip ornament, such ornaments being found *in situ* in many instances.

The section then discussed the question of

Late Prehistoric Man in Britain.

Professor PARSONS described skulls belonging to Huxley's "River bed type," and contrasted them with those crania typical of the Bronze Age in Britain.

Professor W. WRIGHT (London) described the Bronze Age burials of the Yorkshire wolds, dwelling upon the variability of the type, and considering it probable that the race was already a mixed one when it moved from its continental site, which was probably situated somewhere around the shores of the Baltic.

Professor R. W. REID (Aberdeen) described the burials in the short cists which were found scattered about in the north-east of Scotland. Several skulls were exhibited, and the speaker described and illustrated the objects of culture found with them.

Professor BRYCE dealt with the burials found in the west of Scotland, and, disagreeing with Professor Wright, he imagined Central Europe to be the probable home of the race which passed into Scotland in late prehistoric times.

TUESDAY, AUGUST 12TH.

Discussion on Cerebral Localisation and the Precise Significance of Sulci.

Professor KAPPERS presented to the section a report which was a model of its kind—a dispassionate presentation of the views of all the workers in the field and a judicial weighing of these conclusions. This report is already printed in the transactions of the section, and it must remain for long the standard work of reference on this subject. Professor Kappers gave a *résumé* of his report in perfect English, and subsequently replied to each of his critics in the language addressed to him. The first point dealt with was the general meaning of fissuration of the brain, and the truth of the law of Baillarger, that fissuration of the surface increases with the growth of the volume of the brain, was illustrated in a large series of animals. Turning to the special meaning of individual sulci, the speaker remarked that one of the greatest workers had recently tended to discourage those employed in this study. Brodmann, whose work was classical, had laid it down that the study of sulci was a vain pursuit which led to nowhere; but Professor Kappers was more optimistic, and he considered that the value of the study was fully demonstrated in Brodmann's own publications. From a review of all the work accomplished so far it appeared certain that brain folding had a definite relation to intrinsic cortical structure. The thickness of the cortex, again, had a relation to the folding, as had also the disposition of underlying parts of the brain. For special illustrations Professor Kappers detailed the evolution of the sulcus centralis and the submergence of the insula region. In connexion with the sulcus centralis a point of paramount importance was mentioned. Brodmann determined that in a chimpanzee experimented on the motor area departed from the sulcus centralis in the lower part of its course; but the curious thing was that the fissuration in this region was variable in the chimpanzee, and in some specimens the sulcus centralis corresponded exactly to Brodmann's experimental area. This area was of a higher or more human type, and in this instance it seemed clear that the functional and histological differentiation and the cortex had become established first and that the actual disposition of the sulcus centralis was more slowly adapting itself to the new conditions. A great many more points of the utmost importance were discussed in this most interesting paper, and Professor Kappers made it amply clear that the study of fissuration was by no means a vain pursuit; indeed, in his hands it assumed a most profitable aspect, and impressed those present with its past achievements and future possibilities.

Professor G. ELLIOT SMITH (Manchester), in congratulating Professor Kappers, regretted the absence of any opposition, for the meeting was so fully in accord with the summing up of the report that the discussion would be limited to confirming and extending the views advanced. Professor Elliot Smith then amplified some of Professor Kappers's conclusions by a demonstration of the folding of the visual cortex of the occipital lobe, and dwelt upon the relation of the position of sulci to the actual limits of functional areas.

Professor ANTHONY, who followed, dwelt especially upon the region of the insula and expressed his agreement with the conclusions of Professor Kappers.

Professor FELIX MARCHAND (Leipzig) briefly expressed general agreement with the opinions of the previous speakers.

Professor KAPPERS, having replied, gave his second paper on

The Phenomena of Neurobiotaxis in the Central Nervous System.

This proved to be a contribution of exceptional interest and far-reaching suggestiveness. He alluded to the many inquiries that had been conducted into the growth of axis-cylinders of nerves, and contrasted this state of affairs with the poverty of observations on the growth and movements of the ganglia themselves. That the ganglia cells do alter their position in the central nervous system Professor Kappers made abundantly clear The nuclei of many cranial nerves were traced by means of a beautiful series of [illegible]

combinations The principle underlying all this Professor Kappers has named neurobiotaxis, or a displacement of nerve cells in the direction of the place of stimulation The subject is a vast one, and, apart from its mere utility of explaining the curious intracranial course of some nerve roots, it involves a biological principle of the most wide reaching kind No contribution to this section during all its sessions suggests so much or helps so eminently in correlating function with structure Reflection rather than discussion was provoked by such a paper, and the debate was limited to the suggestion made by Professor Elliot Smith that the development of interstitial tissue separating cells, rather than an active movement of cells, was the cause of the change of position of the nuclei

Professor R J **ANDERSON** (Galway) gave his paper on

The Skeletal Elements of the Extremities of Primates

The paper for the most part was concerned with a series of measurements of the different bony components of the limbs

Dr **FERNAND VILLEMIN** (Reims) contributed a paper on

The Lower Limit of the Duodenum

This paper dealt with gross human anatomy and described an apparently overlooked structure in the much studied human alimentary canal Dr Villemin urged that the lower termination of the duodenum was not at the duodeno jejunal junction so called, but at a point some inches nearer to the stomach This point was marked in the adult by (1) a mucus membrane valvule, (2) an extension into the valvule of a part of the circular muscular coat, (3) by the cessation of Brunner's glands, and (4) by the insertion of the muscle of Treitz It was admitted that these features were not so distinct in the fœtus, nor in lower animals, but Dr Villemin showed sections of the valvule, and considered that it constituted the true morphological limit of the duodenum

The sessions of this section terminated with a graceful speech from the **PRESIDENT**, in which he bid adieu to the members, and thanked those who had contributed to the successful working of the meetings

SECTION IV —BACTERIOLOGY AND IMMUNITY

THURSDAY, AUGUST 7TH

President, Professor G **SIMS WOODHEAD**

The opening session of the section was devoted to a discussion of

Anaphylaxis,

the reporters being Professor L **FRIEDBERGER** (Berlin), Professor A **BESREDKA** (Paris) and Professor CH **RICHET** (Paris)

Professor **FRIEDBERGER** in introducing the subject gave a comprehensive summary of all the recent work upon

Protein Anaphylaxis,

and pointed out that the entire symptom complex was the only criterion of the existence of the condition He compared it with other toxic conditions from which it differed only by reason of the fact that protein substance provoking anaphylaxis was in itself practically harmless, and only became toxic when introduced into a previously sensitised animal He then discussed the formation of anaphylotoxin from the antigen antibody complement combination, and suggested that bacterial endotoxins might similarly be toxic reaction products

Professor **RICHET** dealt with

Alimentary Anaphylaxis,

which he suggested was due to defective immunisation, and referred to the attempt of many observers to sensitise experimental animals by way of the alimentary tract He explained that sometimes albumins escaped the action of the gastric juice and were absorbed in minimal doses and subsequently mild anaphylaxis, evidenced by rashes of the urticarial type, was induced, and suggested that whenever a new albuminoid was added to the dietary it should be taken repeatedly in small quantities in order that the organism might become habituated

Professor **BESREDKA** took

Anti Anaphylaxis

for his text, and described the experimental methods that were successfully employed in preventing anaphylactic shock in animals Arising from these experiments he explained the method of obviating anaphylaxis in the human subject hypersensitive to serum by the subcutaneous, intravenous or intraspinal injection of a small dose of serum (from 0 5 c c to 2 c c) followed after an interval of from 10 minutes to several hours by the therapeutic dose it had been decided to employ A translation of Professor Besredka's report was printed in THE LANCET of August 16th, p 462

Professor R **WEIL** (Cornell University, U S A) described his experiments on the cellular theory of anaphylaxis in which isolated organs from sensitised animals were washed with Ringer's solution and their movements recorded on a drum He found that tetanic contractions were obtained when the antigen was employed, but that in the absence of antigen no differences could be demonstrated between the contractions produced by normal serum or by normal saline

Dr H H **DALE** (London) demonstrated a series of Tracings of the Movements of the Perfused Uterus (from a sensitised guinea pig) which was suspended in Ringer's solution At a given moment the reacting dose was added to the solution and almost immediately a massive contraction was graphically recorded He considered that the specificity of anaphylactic reaction was so delicate and distinct as to be highly suitable for medico legal investigations

Professor **JULES BORDET** (Brussels) whilst agreeing with Professor Friedberger that the anaphylatoxin obtained *in vitro* was identical with that observed *in vivo*, differed in his explanation of the origin of the poison since he considered it to be derived, not from the antigen but from the serum itself of the animal exhibiting the anaphylactic shock and regarded anaphylaxis as the result of the absorption of certain substances of the serum derived perhaps from the antibody antigen complex perhaps from totally different substances—as, for example, agar

Dr F H **THIELE** (London) defended the ferment theory of anaphylactic conditions as against the cellular, and

Professor **KRAUS** (Vienna) insisted that the only method of arriving at a correct explanation of anaphylaxis was by purely physiological experiment

Dr H **DE WAELE** (Paris) contended that the anaphylactic condition was entirely due to the increased coagulability of the blood

Dr **FRIEDBERGER** briefly replied and terminated the morning's proceedings

On resuming work in the afternoon Dr **DE WAELE** read a further communication upon anaphylaxis, expanding and illustrating the views to which he had given expression during the discussion in the morning

Dr **THIELE** repeated the observations on the toxicity and pathogenicity of bacteria previously given in conjunction with Dr D Embleton (London) at the meeting of the British Medical Association at Brighton[1]

Dr I M **ALBAHARY** (Paris) read a paper upon the Tuberculous Toxin and just before the section adjourned Dr **SOPHIE FUCHS VON WOLFRING** (Paris) gave the results of her research on spirochætæ in human blood by Carl Spengler's staining method, in which she stated that Spengler's spirochætæ were always present in the blood of syphilitic patients and of those giving a positive Wassermann reaction

FRIDAY, AUGUST 8TH

The morning session was occupied with a discussion upon cancer in conjunction with Section IIIA, Chemical Pathology, under which section a report of the proceedings will be found in our last issue, p 478

In the afternoon Dr C G **GUTHRIE** Dr W L **MOSS** and Dr J **SELIGN** (Baltimore) reported their investigations upon

Diphtheria Bacillus Carriers

These workers have continued their previous research with a view to determining the duration of persistence of diphtheria bacilli in the throats of carriers and to discovering whether the persisting bacilli may undergo a change in virulence during their growth in the throat. The results were remarkably constant and showed that if, from a given individual, the first culture was virulent, all the subsequent cultures were virulent, or if the first culture was avirulent all the subsequent cultures were also avirulent. Rare exceptions to this rule, where sometimes virulent and sometimes avirulent bacilli were recovered, were considered as probably due to successive infections with organisms possessing different degrees of virulence. No evidence was obtained that the same person ever harboured simultaneously virulent and avirulent organisms. Further, the introduction of pure cultures of avirulent B. diphtheriæ into the throats of a series of healthy persons caused infestation with these organisms for long periods; but no symptoms developed, and organisms recovered from them were never virulent. On a basis of 5000 cultures from 3300 persons not suffering from clinical diphtheria the authors concluded that the number of healthy carriers of B. diphtheriæ in Baltimore was very large (3·55 per cent.). Of these, only a tenth to a sixth harboured virulent organisms; this number was greatly in excess of the cases of clinical diphtheria. A striking fact was that no case of clinical diphtheria developed in the carriers or in any of their associates during the progress of the investigation.

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[1] See THE LANCET, Jan 25th 1913 p 234

Dr. Thiele and Dr. Embleton described the transformation of avirulent B. Hofmann (pseudodiphtheria) into virulent diphtheria by inoculating guinea-pigs intraperitoneally with a pure culture of pseudodiphtheria along with gelatin and then selecting the recovered organisms.

Dr. W. H. Fearis (London) demonstrated an ingenious dark ground arrangement whereby the end point in precipitation reactions could be rapidly and accurately determined.

Dr. Archibald Leitch (London) made a communication upon the

Diminution of Resistance to Repeated Inoculation of Mouse Cancer.

The view generally held that if a tumour graft failed to grow in an animal that animal was immune to subsequent inoculation was not universally true. A number of so-called "immune" mice were repeatedly inoculated with the same strain of tumour at intervals of over a month, and it was found that growth might ensue only after the fourth or fifth inoculation. Similar results were obtained with several different tumours. Thus the susceptibility to inoculation with tumour was a fluctuating quantity in any given animal.

Dr. Isaac Levin (Columbia University) spoke upon

The Mechanism of Immunity in Experimental Cancer.

Immunity to tumour was not of the same nature as bacteria' immunity, but was probably due to ferment action, since tumour immunity could be conferred by injections of autolysed tissue. The phenomenon of athrepsy was not caused solely by disturbance of food relationships. Experiments with a mouse sarcoma which had been transplanted into a rat showed that the rat's tissues had inhibited the activity of growth of the tumour when retransferred to mice. The organism of the host had a direct action on the tumour cells, and different organs might behave differently in this respect; thus the Flexner-Jobling rat sarcoma would not grow when implanted in the healthy testicle, but would grow if the testis had been previously injured with Scharlach R. Similarly, immunity was acquired by different organs in varying degree; thus after imperfect removal of a subcutaneous tumour graft it was found that subsequent inoculations made simultaneously in the liver and spleen were followed by growth only in the latter organ. Radio-active bodies might act by leading to the local development of growth-inhibiting substances.

Dr. D. Jacobson (Paris) reported good results from the direct application of Marmorek's antitubercular serum to the local lesion—e.g., intravesical administration in tubercular cystitis.

SATURDAY, AUGUST 9TH.

Dr. W. Broughton Alcock (Institut Pasteur) recorded results obtained by the use in 2000 cases of

Sensitised Vaccines,

as recommended by Besredka. A year's experience had shown that no ill effects followed the subcutaneous injection of living pyogenic cocci sensitised with immune serum. Comparatively little reaction followed the injections, the doses being usually given at intervals of three days. The immune sera were derived from rabbits, and were used in the unheated state after being kept for some weeks; they were tested beforehand by the complement-fixation reaction. In the case of staphylococcal infections autogenous vaccines were not always the most effective. The serum of patients vaccinated with dead staphylococci served well for the preparation of sensitised vaccines. In cases of acne which were not improved by dead vaccines good results followed the use of living sensitised organisms. Gonococcal epididymitis and arthritis responded well, also pyorrhœa alveolaris.

Dr. Thiele questioned the safety of sensitised vaccines if they obtained access to the blood stream, in view of his observations on anaphylactic phenomena when sensitised red blood corpuscles or bacteria were injected into guinea-pigs.

Dr. G. Hofere (Vienna), working, with the ozœna bacillus of Perez, found that this organism in culture produced the characteristic smell of ozœna. When injected intravenously into rabbits or applied locally in suitable doses the organism produced a condition closely resembling ozœna in the human subject. In typical ozœna cases the patients' sera agglutinated the bacillus of Perez in a dilution of 1 in 100, while the sera did not act on other organisms recovered from the nasal secretion in ozœna. The organism was cultivated from the nose in a number of cases, and vaccine treatment produced good results. One striking result of injections of the vaccine was the acute nasal catarrh which followed shortly after a dose, and persisted for 24 hours.

Dr. Fenton B. Turk (New York) described the

Serum Changes and Lesions produced in Animals by Feeding with the Colon Bacillus.

When animals were fed with virulent and very motile B. coli the bacilli passed through the mucous membrane into the lymph spaces of the intestinal wall and there underwent rapid bacteriolysis. The products in the circulation and by diffusion caused peptic ulcers of the stomach and duodenum. Intravenous injections into dogs produced lesions similar to those obtained by feeding.

Dr. N. F. Surveyor (Bombay) described

A New Method for the Treatment of Bacterial Infections—a Modification of Vaccine Treatment,

which consisted in making measured dilutions of pus from the patient with normal saline and then sterilising by heat. This "autoxin" might be administered by itself or it might be used for diluting a vaccine prepared in the ordinary way ("autoxin-vaccine"). The chief advantage claimed for this procedure was that bacterial constituents might thus be employed for immunising in the case of organisms which failed to grow in artificial media. Thus the autotoxin might be advantageously employed in cases of pyorrhœa alveolaris and mucous colitis, also in pyæmia. Dr. Surveyor drew attention to the fact that in treating pyogenic conditions with vaccines the pus should be examined periodically to determine whether or not an additional infection had become superadded.

MONDAY, AUGUST 11TH.

Filter Passers.

A discussion on this subject was opened by Professor F. Loeffler (Greifswald), who said that since he and Frosch showed in 1898 that the virus of foot and mouth disease passed through filters a large series of diseases had been attributed to "filter passers." Amongst these might be mentioned yellow fever, dengue, pappataci fever, poliomyelitis, and infective pleuro-pneumonia of cattle; recently it had been asserted that the infective agents of scarlet fever, measles, and typhus fever also belonged to this group. He pointed out that the capacity of a virus to pass through a filter told nothing of its nature except that it must be of minute size. The virus could be characterised only by its power to reproduce the disease on inoculation. Attempts to cultivate the filter passers in artificial media had in general been unsatisfactory; but success had been achieved in certain instances. Thus, the virus of infective pleuro-pneumonia was cultivated inside collodion sacs in the peritoneal cavity of rabbits, and Bordet obtained growths on blood agar. The parasite in this instance was relatively large and its filtrability was prevented if there was too great an amount of albumin in the fluid to be filtered. The fowl plague virus also grew in artificial media, as was proved by the fact that the minimal infecting dose was the same after repeated subculture as in the original culture (Marchoux, Landsteiner, and Berliner);

this parasite required intact blood corpuscles for its growth. But in other instances—e.g., foot and mouth disease—attempts at cultivation had failed. Immune sera could be obtained by inoculation with large amounts of cell-free infective material—e.g., cow-pox lymph. In conclusion, Professor Loeffler urged that in view of the great importance of filter passers in the etiology of disease laboratories should be devoted to the study in all countries.

Sir JOHN MCFADYEAN (London) said that the demonstration of invisible viruses marked a new epoch. The invisibility of a virus was of more interest than the fact that it was a filter passer. The term "filter passer" was not a precise one. Whether bacteria could pass through a filter or not depended on (*a*) the texture and thickness of the filter wall; (*b*) the pressure under which the filtration was carried out; (*c*) the duration of the filtration; (*d*) the composition of the liquid in which the bacteria were suspended; and (*e*) the form and dimensions of the bacteria. By way of control it was necessary to show that a small but visible organism in the fluid was held back by the filter while the virus passed through. In the case of human diseases it might be difficult to prove the presence of the virus unless a susceptible animal could be found. In regard to the reproduction of the natural disease by inoculation there were pitfalls. Thus, in the case of swine fever cultures of a bacillus, which was at one time thought to be the cause of the disease, produced the characteristic lesions on inoculation, but the experimental disease was not contagious. On the other hand, the inoculation of the filtered virus of infective pleuro-pneumonia practically never gave rise to the lung lesions characteristic of the natural disease, and the experimental disease was non-contagious; but the same held good of inoculation with the unfiltered infective material. It was a striking fact that the great majority of the filter passers had not been obtained in artificial culture. This might be due in some cases to their being of protozoal nature—e.g., the viruses which were transmitted by insects, such as yellow fever. Again, the occurrence in certain instances of infection by the mouth pointed to the bacterial nature of the parasite. The occurrence of saprophytic invisible filter passers had not yet been demonstrated, but this might be due to ignorance of the conditions necessary for growth. It was probable that great advances would be made in the cultivation of invisible organisms, and he agreed with Professor Loeffler that the study of this group should be subsidised.

Dr. W. FORNET (Berlin) reported that he had effected the pure culture of the vaccinia virus. The vaccine lymph was sterilised by the addition of ether, which had the advantage of killing off associated organisms and at the same time of not harming the specific agent; the ether could be readily removed by evaporation and its action thus stopped. The lymph which had been so treated remained active after incubation for months at 37° C., and was therefore suited for use in the tropics. Unlimited growth occurred in culture media without any visible alteration, and the infective dose after repeated subculture precluded the idea that proliferation of the virus had failed to take place. Certain microscopic appearances in the cultures after staining by Loeffler's method were described as characteristic.

Professor KRAUS (Vienna) described experiments with the filtrable virus of fowl plague. His work emphasised the importance of testing various species of animals and of the same species at different ages. Also differences in various strains of the same virus were brought out. A certain virus isolated from a case of fowl plague was found to be infective for both young and old geese when inoculated intramuscularly, whereas the "laboratory" strain of virus failed to infect old geese, which, however, succumbed to intracerebral infection. The serum of old geese vaccinated with the avirulent strain had a prophylactic action against inoculation with the virulent virus. No growth was obtained in artificial media.

Dr. LAMBERT, along with Dr. STEINHARDT (Columbia University), had cultivated with success the vaccinia virus in rabbit's cornea along with blood plasma *in vitro*. They employed vaccine lymph freed from glycerine by dialysis, and obtained a number of cultures without the presence of bacteria. The material used for cultivation was capable of producing only a small number of pustules on inoculation, but after growth for 18 days the culture gave rise to a confluent eruption. They concluded that multiplication of the virus had occurred along with the living growing corneal epithelium.

Professor G. SIMS WOODHEAD (Cambridge) had failed to obtain positive results on inoculation with filtered vaccine lymph.

Professor C. J. MARTIN (London) described experiments conducted by Dr. Todd, of Cairo, on the virus of rinderpest which showed that the causal agent of this disease did not pass through a Berkefeld filter. Starting with infective citrated blood which was active in a dose of 0·001 c.c., and subjecting this to centrifugalisation, the following results were obtained: the top layer was non-infective, the layer of red corpuscles contained the infective agent in only a hundredth of the concentration of the original whole blood, and the greatest part of the virus resided in the leucocyte layer. This appeared to suggest that the infective agent might be situated within cells.

Dr. ALAN B. GREEN (London) had compressed the contents of vaccinia exudates into citrate solution, and so obtained a clear fluid which could be readily filtered. Every filtrate failed to give positive results on inoculation.

Professor LOEFFLER, in concluding the discussion, said that in many cases there was a justifiable doubt as to the authentic character of alleged filter-passing viruses. Negative results had been obtained with trachoma. Prœscher, who had failed to pass the virus of rabies through filters, found that bacilli could be demonstrated in the infected tissues by means of an alkaline solution of methylene-agar. No generalisation of the facts of one disease could be applied to another.

Professor E. E. IRONS (Chicago) communicated his

Studies in Gonococcal Immunity, with Special Reference to Diagnosis and Treatment.

As regarded cutaneous reactions with extracts of gonococci there was no doubt that the reacting power of an infected person differed from that of a healthy individual, but suitable extracts must be employed. Complement-fixation experiment was the most satisfactory method of measuring the antibody content of patients' sera. Experiments had shown that the amount of antibody in the serum was liable to undergo marked fluctuations; frequently these occurred quite apart from any clinical explanation. The opsonic properties of the serum behaved similarly. The results of the cutaneous reaction and of complement fixation did not always run parallel. It was not possible, so far, to apply serological data to determine when cure had been effected, but positive reactions had considerable diagnostic importance.

Dr. W. J. PENFOLD (London) read a paper on

The Inhibition of Bacterial Growth,

in which he said that when culture medium was at first inoculated from a previous culture delay (or "lag") in growth usually occurred for a period. But there was no lag provided that the inoculation was made from a culture which was at the time growing with maximum rapidity. Brief chilling of such cultures did not produce lag when the temperature was again raised. Lag was diminished by a large inoculating dose, but it was not influenced by thermostable products of old cultures. At lower temperatures there was greater lag than at higher. The explanation adduced for lag was that the synthesis of bacterial protein occurred in stages, and that a certain concentration of products at intermediate stages was essential for growth. The period of lag and of maximal growth had been combined in one mathematical expression.

Professor FRIEDBERGER (Berlin) discussed

Heterogenetic Antibodies,

and stated that Forssman's observations upon the injection of guinea-pig's kidney into rabbits, causing the latter animals to develop in their blood serum a hæmolytic immune body for sheep's blood, had been confirmed. In addition, a number of original observations had been made which were of the highest importance as regards the theory of the origin of antibodies. It had been found that guinea-pig's urine acted similarly to kidney tissue, and the immunising constituent of the urine was soluble in alcohol. The immunising power of tissues or their products ran parallel with their toxic properties. Immunity to tissues of higher animals and to bacteria differed in one important respect—namely, that in the case of the latter the entire protein of a living entity was used for immunising; whereas in the case of mammalian tissues, &c., only the protein of a single specialised tissue was injected.

Tuesday, August 12th.

Dr. C W. **Duval** (New Orleans), who opened a discussion on

Leprosy and Allied Conditions,

considered that the various organisms which had hitherto been described as the causative agents of leprosy did not substantiate the claims made for them. Thus organisms which had grown readily on ordinary culture media soon after isolation, or which were chromogenic, were not the true B lepræ. The bacilli of Kedrowsky and of Levy resembled most closely Müller's smegma bacillus. Non-acid-fast organisms (diphtheroids) and streptothrices were merely associated microbes. Specific serum reactions of complement fixation were not obtained with the acid-fast group, and there were no characteristic lesions distinguishing B. lepræ when inoculated into animals from acid-fast saprophytes; typical skin and nerve lesions would require to be produced. The true leprosy bacillus of Hansen probably required for its growth the split products of protein, and could not utilise whole protein, so that growth was obtained only when protein was hydrolysed or autolysed. When autolysis occurred in the tissue of a leprous nodule placed on culture medium, then the bacilli proliferated; but there had as yet been very little accommodation of this bacillus to the conditions of artificial culture media, so that after from eight to nine weeks' growth the culture was not more vigorous than that of B. influenzæ.

Major E. R. **Rost**, I.M.S., by means of medium containing agar, milk, and volatile products of fish, had obtained growths of a highly pleomorphous organism which grew well. Cold-blooded animals (frogs and mud fish) were more susceptible than warm-blooded ones, which suggested that the former might naturally harbour the disease. Cultures of diverse character appeared much more alike when recovered after inoculation into frogs. Naturally infection occurred probably by means of clothing through broken skin surfaces. Inoculation at the site of wounds had been seen in two cases. Vaccine treatment with a mixture of seven strains had been employed in about 30 instances, with very encouraging results. In severe tubercular cases a marked febrile reaction occurred; in anæsthetic cases there was merely slight flushing of the light patches. Leprotic fever did not contra-indicate treatment. Other streptothrix vaccines would produce similar reactions in large doses, but no improvement had followed their administration. In view of the pleomorphic character of the organism autogenous vaccines were to be recommended. As prophylactic measures segregation of cases and sterilisation of clothing should be practised.

Dr. H. **Fraser** and Dr. W. **Fletcher** (Federated Malay States) had, over a period of 18 months, uniformly failed to obtain cultures of B lepræ. Their method consisted in very carefully sterilising the skin surface with alcoholic iodine solution and then reflecting a flap and dissecting out nodules which were implanted on various media. The presence of typical bacilli was always determined by microscopic examination. The media employed were blood and serum media and the various media associated with the names of Rost (Williams's modification), Williams, Duval, Bayon, and others. Contaminating organisms such as diphtheroids, &c., grew well in the first subculture. The behaviour of organisms to weak acids, as tested by some workers, was regarded as a source of fallacy. The conversion of acid-fast into non-acid fast varieties recorded by certain observers had been due to an overgrowth by non-acid fast contaminating microbes.

Dr. P. G. E. **Bayon** (Robben Island) demonstrated a large variety of lesions due to leprosy and allied conditions. A number of cases occurred with nerve lesions, and these in their clinical course resembled leprosy, but no acid-fast organisms could be detected in them; inoculation into guinea-pigs afforded no evidence that these cases were due to tuberculosis. In his experience the organism grew only on media suited for the growth of the tubercle bacillus. Treatment with an extract of Kedrowsky's bacillus had given very favourable results, but in view of the nature of the disease it was unsafe to speak of cures.

Professor **Kraus** and his co-workers had found that in the acid-fast group a specific reaction could be obtained analogous to the Pfeiffer phenomenon. Thus in an immune guinea-pig when injected intraperitoneally with a culture bacteriolysis occurred only when the homologous organism to that used for immunisation was injected. Kedrowsky's bacillus and Duval's (early) culture were proved to be different by this method, which should prove of value in determining the etiological relationships of the various bacilli of this class.

Sections VI. and II.—JOINT SESSION OF THE SECTION OF MEDICINE WITH THE SECTION OF PHYSIOLOGY.

Friday, August 8th.

Professor Sir E. A. **Schäfer** (Edinburgh) first occupied the chair, and later Sir **William Osler**, Bart. (Oxford).

A discussion on

The Correlation of the Organs of Internal Secretion and their Disturbances

was opened by Professor E. **Gley** (Paris), who gave a *résumé* of the various methods by which the existence of internal secretions could be ascertained and demonstrated, histological, physiological, and chemical. He pointed out that in spite of the vast amount of work on the subject which had been published in the last five-and-twenty years the quantity of our exact and certain knowledge was still disappointingly small. Too many hypotheses and theories had been formulated. Not only so, but certain discoveries, such as some of those made by Schäfer, had turned out to be positively harmful, by what he adroitly termed *un bonheur malheureux*, for they had misled subsequent workers. He pointed out that a fact of great importance is overlooked by too many of the experimenters who labour in this field of physiology. It is this: that one cannot take it as proved that the substance found in the extracts made from organs were actually present in those organs during life. These extracts were often highly toxic, he said; yet it must not be rashly assumed that the toxicity was due to specific substances secreted by the organ. The toxicity here might depend upon many conditions, and most of all upon the method by which the extract had been prepared. Among other topics he discussed the newly discovered property of tachyphylaxis, exhibited when, as sometimes happens, an animal's tissues acquire the property of resisting a second toxic injection within a few minutes or hours, while the first injection had found these tissues unprepared and open to attack. The reciprocal actions of the ductless glands were, of course, he admitted extremely complex and hard to disentangle; for solution of these problems he looked to laborious physiological and clinical work in the future.

Several succeeding speakers, among them Professor A. **Biedl** (Vienna), Professor A. **von Korányi** (Budapest), and Professor F. **Kraus** (Berlin), read papers dealing with generalities and matters of detail that do not lend themselves to compression.

Professor **Harvey Cushing** (Boston, U.S.A.) gave an admirably clear and well-illustrated account of much of his own experimental and clinical work on disorders of the pituitary body. He exhibited pictures of dogs whose hypophyses had been removed, and followed them up with pictures of human beings presenting very analogous—*mutatis mutandis*—syndromes. The adiposity and infantilism characteristic of Frölich's syndrome might, to some extent at any rate, be inherited; a lantern slide was exhibited showing a grandmother and a mother who both presented several of the outward features of the syndrome; while the daughter, just the fat and foolish-looking child that might have been expected from such an ancestry, exhibited the syndrome in all its completeness. Professor Cushing brought a new type of dyspituitarism to the attention of his audience. The patients of this type are thin instead of being fat, but exhibit the same loss of the secondary sexual characters (though perhaps by retrogressive change) as the patients of the commoner adipose type. He made reference to several other types of dyspituitarism, and showed how in some the disease had been diagnosed as myxœdema, and had received the treatment appropriate for that condition without benefit. He had found that the administration of pituitary extract improved these patients, and he took such a therapeutic success to be evidence of the correctness of his diagnosis. Another patient, whose picture he showed, a girl aged 6 years, looked as if she was 16 years old , she had menstruated from the age of 2, and her secondary sexual characteristics had made their appearance when she was 3 He pointed out in conclusion that further researches into the functions of the pituitary gland would very likely throw light upon the physiology of sleep , research had already done something to illuminate the part played by the gland in hibernation

Other points in the correlations of the ductless glands in both health and disease were brought out by other speakers, including Professor P T HERRING (St Andrews), Dr W FALTA (Vienna), Dr W BLAIR BELL (Liverpool), Professor SWALE VINCENT (Winnipeg), Professor G MURRAY (Manchester), Professor P MORSALINE (Buenos Aires) and others

In replying to and commenting on a number of the points raised during the discussion, Professor GLEY took occasion to emphasise the fact that hyperplasia of a gland—of the suprarenals in granular kidneys, for example—was not necessarily equivalent to its functional hyperactivity, an assumption too often made

The hall in which this joint meeting took place was crowded to its utmost capacity, and the discussion maintained an unusually high level of excellence and was most interesting

The afternoon session was occupied by the reading of three good papers The last of these, by Dr HAVEN EMERSON (New York) dealt with the occurrence of the

Status Lymphaticus (or Lymphatism) in Adult Males

It might be noted, he said, that the general public came to hear of this rather uncommon condition mainly by means of the coroner s court, for the children or adolescents who suffered from lymphatism were those who were liable to die suddenly and unexpectedly while under the influence of an anæsthetic Dr Emerson brought forward a number of considerations to show that the milder degrees of status lymphaticus were surprisingly frequent in the men treated for chronic alcoholism and insanity His facts and figures were drawn from 1000 of the male patients admitted to the alcoholic wards of the Bellevue Hospital in New York No less than 220 of these patients showed most if not all the physical attributes characteristic of the status lymphaticus The chief of these attributes were as follows scantiness or absence of the hair on the lip, chin, chest, and axilla , a feminine type of distribution of the pubic hair , a tendency to narrowness and length in the thorax , a notable roundness and arching of the thighs and roundness of the upper arms , and smallness of the penis and testes Often the skin was soft and velvety, and peculiarly free from hairs Dr Emerson failed to find the enlargement of the spleen that is so commonly said to occur in lymphatism Examining the hospital post mortem records, he found 288 cases of status lymphaticus in 3600 obductions, and 242 of these patients had succumbed to infectious diseases such as tuberculosis, pneumonia, meningitis, and enteric fever He drew the conclusion that persons with this mild or incomplete type of lymphatism were bad subjects for surgical operations, were prone to die (when normal people would recover) if they contracted an infectious disease, and showed a tendency to alcoholism, the drug habit, and insanity He did not go so far as to say that they were social undesirables, but he was of the opinion that they should be protected both against infectious disorders and against themselves

SECTION VI —MEDICINE

SATURDAY, AUGUST 9TH

President, Sir WILLIAM OSLER, Bart (Oxford)

An important discussion on

The Pathology of Heart Failure

was held during the morning session It was opened by Professor H VAQUEZ (Paris), who began with an account of the various methods of clinical investigation that told when heart failure was to be expected or diagnosed The chief of these were acceleration of the pulse rate, fall in the arterial blood pressure, changes in the cardiac rhythm (and particularly the appearance of certain forms of irregularity) and alterations in the form of the tracings furnished by the electrocardiograph He was particularly anxious that the talented employers and interpreters of the electrocardiograph should not permit zeal to outstrip discretion, and should not attempt to draw from the electrocardiogram deductions more precise than present knowledge warranted Professor Vaquez thought that examination with the X rays, especially when repeated from day to day, gave more valuable information about heart failure than any other method of examination He went on to point out that failure of the heart might be either partial or total, and might affect different chambers of the heart in different cases Thus, failure of the auricles was not rare in mitral disease, and often really seemed to make but little difference to the patient Failure of one or other of the ventricles of the heart was commoner , failure of the left ventricle was the cause of those painful palpitations and attacks of painful dyspnœa that frequently occurred towards the end in severe cases of heart disease, and at any time often brought with them sudden death Primary failure of the right ventricle, contrariwise, was characterised by quite other features—painless shortness of breath on exertion, with only a slight increase in the rate of the pulse Total cardiac failure involving all four chambers together was rare , it might occur in healthy persons after prolonged and violent muscular exertion—in Marathon runners, for example But it might also occur, oddly enough, in the pot house patrons of such athletes, a form of slower onset seen in those who drank vast quantities of beer (the Munich or Tubingen beer heart, so called) Professor Vaquez asked, and the next speaker, Professor Wenckebach, repeated the question, why prognosis in cardiac disease was so often unsatisfactory or even totally wrong ? Because of debility of the heart muscle, they believed, and inability to form any correct clinical estimate of the degree of this debility Arrhythmia had been pointed to as an index of the impairment of cardiac muscle but this was a mistake , arrhythmia indicated impaired cardiac mechanism, and told nothing about the functional competence of the muscular substance of the heart In fact, the only way of estimating the reserve power of the myocardium was the very unsatisfactory one of watching the progress of the malady

Professor K F WENCKEBACH (Strassburg) expounded a method of measuring the reserve of cardiac power by estimations of the contractility of the heart muscle , the method, however, though of great theoretical interest, did not admit of any practical application at the bedside

Professor W T RITCHIE (Edinburgh) next drew attention to "auricular flutter," a condition akin to the auricular fibrillation that had been brought so prominently to the fore by the electrocardiograph When fluttering the cardiac auricles beat from 200 to 350, or even 380, times a minute , the ventricles often followed at only half that rate He quoted cases to prove that neither auricular flutter nor auricular fibrillation deserved the gloomy connotation so commonly ascribed to them They might last for years without harming the patient, and their establishment might even be associated with improvement in his general condition

Dr L F BISHOP (New York) struck out a new line by attributing heart failure to protein poisoning, and proposing to treat it by dieting and exhibiting repeated full doses of castor oil

Dr ALEXANDER HAIG (London) attributed heart failure to uric acid

Of the other speakers several drew attention to the care that should be exercised in giving a bad prognosis in cases of morbus cordis To diagnose "weak heart' as was so often done was almost always wrong, as Professor W S THAYER (Baltimore) pointed out

Dr JAMES J WALSH (New York) emphasised the importance of encouraging cardiac patients to think as well of their physical condition as possible The influence of the mind upon the body was particularly well marked in these patients , to give them a bad prognosis was simply to dishearten them The physician was justified in giving the best prognosis he could, or even better still, to the victims of morbus cordis, a sentiment that was much applauded

Dr E LIBMAN (New York) read an interesting and very complete account of

A New Form of Subacute Bacterial Endocarditis,

which his researches had enabled him to isolate from that refuse heap of unclassified cases known as ' malignant endocarditis " This form of

persons who had already got

that suggested a relapse per

with a new variety of microbe The cases lasted for from which the bacteria causing the arthritis were known. Complete knowledge, he believed, would some day enable them to empty group (5) into group (4) altogether; at present, however, this could not be done. It was a remarkable thing that cases falling into group (5) had been reported from all countries.

Professor F. VON MÜLLER (Munich) followed, and he gave a very full and most instructive account of the pathology of chronic arthritis. A special feature of his address was the skill with which he figured on the blackboard the many morbid changes that might be met with in such conditions. Many of the changes were of a degenerative rather than an inflammatory nature, particularly in those forms of chronic arthritis in which hypertrophy was a marked feature. He drew attention to the curious arthritic and periostitic changes not rarely met with in patients suffering from non-inflammatory mediastinal new growths.

Dr. PRESTON KING (Bath) deplored the unhappy terminology employed in descriptions of chronic arthritis, and agreed with Professor Barker in believing that his fourth and fifth groups would one day be merged.

Professor SINGER (Vienna) spoke of the care needed in discriminating those cases of chronic arthritis due to tuberculosis or syphilis from the other varieties.

Dr. J. BARNES BURT (Buxton) emphasised the important actions of exercise and work in determining the exact nature of the changes produced in chronically inflamed joints. Very similar changes, he called the phalanx of a London cabhorse to witness, might be produced by overwork alone. How many of the hypertrophic changes in the bones of chronic arthritis might well be due to the work done, the use made of the joint, and not to the inflammation at all?

Dr. HALE WHITE (London) expressed his belief in the unity and existence of a chronic arthritis that had been recognised in this country for more than half a century under the name of rheumatoid arthritis. It was correctly placed by Professor Barker in his fifth group of cases; Dr. Hale White believed that it was due to a specific microbe that had never been isolated hitherto, and pointed out that the primary change, seen in early cases of rheumatoid arthritis, was confined to the synovial membrane.

Dr. F. J. POYNTON (London) pointed out that whereas in days gone by chronic arthritis was attributed to errors of metabolism, at the present time the tendency was to attribute it to infection in every case. He believed that the truth lay somewhere between these two views. Injected intravenously into the rabbit, the rheumatic streptococcus isolated by Paine and himself was capable of producing any and every variety of chronic arthritis; further, the effusions withdrawn from such joints would often prove sterile, although one could have no reasonable doubt that they were in reality infected with the rheumatic streptococcus.

Dr. A. E. GARROD (London) deprecated the want of an international nomenclature, by the use of which the confusion at present reigning in the description and classification of cases of chronic arthritis by the writers of different nationalities now prevalent might be got rid of. Modern treatment was undoubtedly better than the old, as was proved by the smallness of the number of very severe types of chronic arthritis to be seen nowadays.

Miscellaneous Papers.

A number of other papers were read. Among them was one by Dr. L. A. CONNER (New York), who had been recently struck by the resemblance to lobar pneumonia that might be presented by cases of pulmonary embolism. The emboli were detached fragments of venous thrombi. He referred to the well-known fact that the signs and symptoms of pulmonary embolism might be the first thing to draw attention to the existence of thrombosis in a patient's venous system.

Dr. H. C. JACOBAEUS (Stockholm) gave an admirable account of the practical utility of laparoscopy and thoracoscopy. This new method of physical examination entailed the puncture of the abdominal or chest wall with a stoutish trocar. The trocar was fitted with an electric lamp and eyepiece, and was so constructed that when its point had been introduced into a cavity the lamp could be lit and the observer could examine the contents and the walls of the cavity directly with the naked eye. He had used the method in some 200 cases, and had never found it did harm to the patient. He quoted a number of instances in which it had yielded him useful information about the patient's viscera, and a number of coloured drawings were thrown upon the screen exhibiting the appearances seen through the laparoscope (or thoracoscope) in such cases as tuberculous peritonitis, cirrhosis of the liver, abdominal tumour, pleurisy, and the like.

The meetings of the Section of Medicine came to an end with the morning session. Every one of its meetings was well attended, even the meeting held on Saturday afternoon, an afternoon that is commonly held sacred to play in this country. The President and secretaries are to be congratulated upon the skill and success with which they got through so heavy a programme of work in the five days on which the section met.

SECTION VII.—SURGERY.

SATURDAY, AUGUST 9TH.

President, Sir WILLIAM WATSON CHEYNE (London).

Professor RUDOLPH MATAS (New Orleans) opened a discussion on

The Surgery of the Arterial System.

He referred to the very great advances which had been made in the surgery of the blood-vessels even within the last ten years; and as time would not permit a discussion of the whole subject he confined himself to the surgical treatment of aneurysms. It was now 25 years since he performed his first operation for aneurysm, and now in all 225 cases had been recorded by himself and by other surgeons. The operations which he had introduced were suitable for aneurysms of all parts of the body where asepsis and complete hæmostasis could be obtained. Of the 225 cases, 194 affected the lower limb, 23 the upper limb, 4 involved the carotid artery, and 4 the abdominal aorta. Of the whole number 53·3 per cent. were aneurysms of the popliteal. As to the operation performed, in 150 cases the obliterative operation was done, in 50 the restorative, and in 25 the reconstructive. Of the 225 cases, 206 were successful, in 4 cases gangrene followed, and all the four operations on aneurysms of the abdominal aorta were followed by death.

Professor Dr. V. A. OPPEL (St. Petersburg) had prepared a paper, and a synopsis of it was distributed, but the paper was not read.

Mr. C. A. BALLANCE (London) mentioned that some years ago he had performed a number of experiments on the suture of vessels. He regarded endo-aneurysmorrhaphy as a great advance, but he doubted whether arterioplasty would meet with general acceptance except in the aorta. On the whole, he was inclined to think that endo-aneurysmorrhaphy should be confined to those cases in which the Hunterian operation was inadmissible.

Dr. A. L. SORESI (New York) held that any successful method of vessel suture must be rapid in order to prevent coagulation, and the methods of Carrel were too slow. Thrombosis was due to injury of the intima, and it was essential that no foreign body such as a suture should enter the lumen of the vessel. He had devised and employed a method of placing minute metal clips on the everted edges of the vessel so as to bring intima into contact with intima.

Dr. ERNST JEGER (Berlin) showed a number of specimens of suture of vessels which he had done. He had invented a pair of twin forceps which made the lateral union of two vessels much more simple. He had succeeded in replacing portions of the walls of large blood-vessels, and also in making a large blood-vessel from a small one. He had used small magnesium plates in suturing vessels, and he had shown that in animals it was possible to unite the innominate artery to a branch of the pulmonary artery so that one lobe of the lung was supplied with arterial blood; he had also succeeded in making a junction between a blood-vessel and the left ventricle of the heart. He did not venture to say that operations on the human heart were likely, but he had shown the possibility.

Dr. CHARLES GOODMAN (New York) pointed out that thrombosis was the great difficulty in vascular surgery. It was essential to isolate the operation field from the rest of the wound. He did not hesitate to pass stitches through the intima, but they must not project into the lumen of the vessel.

Dr. V. SOUBBOTITCH (Belgrade) read a paper on Military Experiences of Traumatic Aneurysms. He gave the results met with in the recent Balkan wars. In 41 cases large arteries were tied, and in 4 cases large veins were tied. Partial suture was performed on 8 arteries and 9 veins, and circular suture was employed on 11 arteries and 4 veins. Of especial interest were the arterio-venous aneurysms, and in these it was found necessary to dissect the artery and vein away from each other, and then resection, suture or ligation was performed as seemed best.

Dr. N. A. Dobrowolskuja (St. Petersburg) described a series of experiments which she had made in the suture of blood-vessels, and she exhibited some specimens which showed how excellent a union had been obtained even in small vessels. In the method she employed the ends of the vessels were slit so as to give a large area for end-to-end suture. End-to-side suture was also shown.

Dr. Danis (Brussels) gave particulars of some interesting experiments he had made on the effect on blood pressure of ligature of the vein as well when a large artery was tied, and he was convinced that the effect on the blood pressure was better than if the artery alone were tied. He was also led to lay down the rule that the artery to a part should never be tied to improve the circulation damaged by injury to a vein.

Dr. A. Chiasserini (Rome) gave an account of experiments on employing pieces of fascia lata to replace portions of the abdominal aorta in dogs. Although the use of a collateral vein was the ideal method of replacing a portion of artery, yet when a suitable vein could not be found he had used glass tubes lined with paraffin, and in one case no thrombus had formed, but in most cases a thrombus formed in the interior of the tube.

In his reply Professor Matas stated that our knowledge of the proliferative power of the endothelium of blood vessels was due to Ballance. He also showed some aluminium strips for temporarily compressing vessels.

Dr. Paul Degrais (Paris) read a paper, written in conjunction with Dr. Louis Wickham (Paris), on

The Assistance of Radium to Surgery in the Treatment of Malignant Disease.

It was shown that radium was capable in some cases of causing the complete disappearance of malignant growths which were considered inoperable; but radium had another function—it could sometimes reduce the size of a tumour so as to render it operable, even though previously it had been regarded as beyond surgical intervention. The details of several striking cases were given illustrating the value of radium in treatment.

TUESDAY, AUGUST 12TH.

Professor Dr. F. Sauerbruch (Zürich) opened a discussion on

Intrathoracic Surgery.

He said that much had been done in the past, and he gave a brief history of the surgery of the thorax, and then he considered the factors which had assisted the progress of this branch of surgery. One important aid to diagnosis had been provided by the discovery of the Roentgen rays, for by their assistance we had been enabled to obtain information impossible by any other means. The investigations of pneumothorax were of importance, for they led naturally to a study of the question of the differences of pressure within the lungs and outside. The investigation of the question of absorption from the pleural cavity had also been fruitful and good. He then proceeded to mention the various methods which had been adopted to maintain the difference of pressure between the air inside and outside the lungs when the thorax had been opened. He explained the mode of action both of the positive and the negative pressure methods, and he stated that a difference of from 7 to 10 millimetres of mercury was amply sufficient to enable respiration to continue. He referred also to the Auer-Meltzer method of tracheal insufflation, but he appeared a little doubtful as to its ultimate utility. The technique of opening the thorax was then briefly described, and he stated that it was unwise to employ drainage if it could be avoided, for it was far better to close the wound completely, drawing the ribs together between which the incision had been made. He expressed the opinion that an exploratory thoracotomy was a procedure of little danger. He then considered the operation of thoracotomy when performed for pneumothorax or for hæmorrhage. He also referred to wounds of the heart and of the large vessels of the chest, and the surgery of the anterior mediastinum and of the œsophagus, and lastly he spoke of the surgical treatment of tuberculosis of the lung and of bronchiectasis. He looked forward confidently to great advances in the surgery of the thorax in the next ten years.

In the absence of Professor Theodore Tuffier (Paris) his paper was read by Dr. Ernest Caillaud (Monte Carlo). After a discussion of the difficulties of diagnosis various points of the technique were considered, such as asepsis, and the anæsthetic to be employed. He pointed out that there was much tendency within recent years to replace resection of the ribs by separation. He had tried various methods of carrying on the respiration after the pleura had been opened, but he had come to the conclusion that the danger of an operative pneumothorax had been overrated, at least if the pneumothorax had been slowly produced. At the present time, however, he has returned to the use of an apparatus for distending the lungs, and that which he prefers is the one devised by Meltzer and modified by Elsberg. The surgery of the various intrathoracic conditions was then considered in detail, especial attention being devoted to the question of the value of excision of a portion of lung for tuberculosis, to an artificial pneumothorax, to thoracoplasty, and to Freund's operation.

Sir William Macewen (Glasgow) wished to draw attention to two points. The first was the result he had obtained in removal of one lung for phthisis, and of this operation he had had four cases, and one of these was shown in excellent health 18 years after the operation. He had found that the heart was inclined to flap about in the pericardium after removal of the lung, and he had found it necessary to stitch up the pericardium in order to prevent this excessive mobility of the heart. The second point related to the physics of the chest. He said that it was usually taught that the lung remained in contact with the chest wall in consequence of the atmospheric pressure, but he did not accept this explanation, and he showed by an experiment that if two pieces of glass or rubber are pressed into contact they cannot be separated even when the atmospheric pressure has been reduced to a few millimetres.

Dr. S. J. Meltzer (New York), while appreciating all that Professor Sauerbruch had done for thoracic surgery, could not think that his methods of maintaining respiration were the best. He had found that the apparatus which he had invented was preferable; this was the intratracheal insufflator. This had often been described as a form of positive pressure instrument, but it was really an instrument for producing artificial respiration. It had been employed in several thousand patients, and harmful results had occurred only in the practice of those who had had but little experience in the work. In two cases in which it was necessary to carry on artificial respiration for a long time, his method was used for 10 and 12 hours respectively. The factor of safety was much greater with intratracheal insufflation than with any of the positive or negative instruments.

Dr. Charles A. Elsberg (New York) spoke highly in favour of insufflation, for it was very efficient, and, moreover, incisions of the lung bled but little.

Dr. Henry Delagénière (Le Mans) gave a *résumé* of his thoracic surgery, and he showed a rubber "mushroom" which he had invented to prevent collapse of the lung.

Mr. G. E. Gask (London) exhibited a form of apparatus which he had devised for intratracheal insufflation. It was simple, portable, cheap, and effective. He had never found any irritation of the larynx produced by its use.

Mr. H. Morriston Davies (London) had had a series of cases of artificial pneumothorax for tuberculosis with good results. He had found that injection of the vagus with novocaine had been very useful in diminishing shock.

Dr. G. E. Armstrong (Montreal) gave an account of a case in which he had removed a bullet from the pleural cavity after it had been there for five days. He showed by cardiograms the effect on the heart caused by the presence of the bullet.

Dr. Danis demonstrated an apparatus which he had invented for the administration of ether or chloroform with positive pressure.

Dr. J. Bouchon (Paris) laid great stress on quickness in operation, and he described several very ingenious instruments designed to increase the rapidity of the operation of opening the chest wall.

Further papers by Dr. P. DESFOSSES (Paris), Dr. MENCIÈRE, and Dr. ROYAL WHITMAN (New York) upon

Methods of Treatment of Special Paralyses

followed. Dr. Whitman's description of his operation for talipes calcaneus, in which he removes the astragalus and displaces the foot backward beneath the tibia, provoked considerable discussion, and Dr. Whitman by arrangement gave a demonstration of this operation at the Royal National Orthopædic Hospital.

SECTIONS VIIA. AND XXII.—JOINT SESSION OF THE SUBSECTION OF ORTHOPÆDICS WITH THE SECTION OF RADIOLOGY.

TUESDAY, AUGUST 12TH.

Discussion upon the Radiography of the Bones and Joints and its Value in Orthopædic Surgery.

Three exhaustive reports dealing with this wide subject were submitted by Dr. NOVÉ-JOSSERAND (Lyons), Dr. G. F. HAENISCH (Hamburg), and Dr. P. REDARD (Paris). Dr. Redard dealt more particularly with general and special technique, insisting first upon the importance of rapid radiography and of stereoscopic work, and then discussing the technique of radiography of various regions. Dr. Haenisch referred to several important, although small, points in diagnosis, such as the partial displacement of epiphyses. Dr. Nové-Josserand gave a very full summary of the discoveries in bone and joint disease by the aid of radiography.

The discussion was continued by Dr. N. S. FINZI (London), who demonstrated by means of radiographs that in Madelung's deformity of the wrist there is an arrest of growth of the inner part of the lower epiphyseal line of the radius; by Dr. MAUCLAIRE (Paris), who also described an abnormality of this epiphyseal line; by Mr. ELMSLIE, who showed radiographs of two cases of the condition described by Calvé as pseudocoxalgie; by Dr. PAUL-VITAL BADIN (Paris) in a short paper on the Radiography of Flat Foot; and by others.

In the afternoon in the subsection of Orthopædics Dr. MURK JANSEN (Leiden) read a short paper upon the Vulnerability of Fast-growing Cells and the Connexion between this point and the Changes in Rickets which affect chiefly the Fast-growing Cells of the Epiphyseal Cartilages.

SUBSECTION VIIB.—ANÆSTHETICS, GENERAL AND LOCAL.

THURSDAY, AUGUST 7TH.

President, Dr. DUDLEY W. BUXTON (London).

In welcoming the members the PRESIDENT said that that was the first occasion upon which anæsthetics had obtained recognition as an individual section. The innovation was justified if they compared the range of knowledge, and methods of practice of, anæsthetics which obtained in 1881, when last the Congress was held in London, with the conditions existing in 1913. Although such men as Bernard, Snow, and Bert had elucidated the action of chloroform, and Clover had initiated a reasonable method of giving ether, there was then little general knowledge and less practical skill. A few experts obtained good results, while the majority of patients both in and out of hospitals were anæsthetised by those who possessed slight scientific knowledge, and whose methods of practice were jejune. To-day a great advance had come, especially in methods. It was true that a vast amount of research had brought clear and accurate knowledge of the agents in use, and the scientific anæsthetist at the present time armed with this knowledge was able to select for each patient not only the safest drug but the method best suited to the physical state of the patient and the necessities of the operation. Not only was nitrous oxide and oxygen used for general surgery—the methods of the originator, Paul Bert, having become simplified and the action of the agent reinforced by preliminary injection of alkaloids—but ether could be given by intravenous infusion, intratracheal insufflation, colonic absorption, while chloroform had lost its terrors since the adoption of dosimetric methods. To such resources were added the splendid results accruing from spinal anæsthesia and local with conduction analgesia. The view held by the most thoughtful was that such methods were best used in conjunction. Dr. Buxton felt that when the anæsthetist had finally thrown off the rôle of handicraftsman, and had equipped himself with full knowledge of his science while he had perfected himself in his art, he would both assume his proper status in the eyes of his professional brethren and obtain due honour from the public whose lives it was his responsible duty to safeguard.

Professor TUFFIER (Paris) reported on

Modern Methods of Spinal Anæsthesia.

Tracing the history of the work—Corning (1885), Quincke (1891), Bier (1898), and Tuffier (1899)—he first discussed the claims advanced in favour of extradural injection, and described the technique. Failure sometimes occurred, and although minor accidents had been recorded no serious results were known. Anæsthesia, Professor Tuffier said, could be so obtained, but the technique was complicated and the results uncertain. With regard to intradural injections, he believes the failures in this method are due to mistakes in technique, which are often quite minor. Some of these were mentioned. The lower site for puncture Professor Tuffier regarded as safer than the high site. Jonnesco's statistics, even if considered to be encouraging, revealed the danger incident to the procedure. In discussing the agents in use, he stated that with the exception of M. le Filliatre, surgeons had given up the use of cocaine, since its rapid diffusion led to cerebral vomiting and other accidents incident to its action on the medulla. In order of toxicity he placed the agents cocaine, alexine, stovaine, tropacocaine, and novocaine (Le Brocq). Various authorities were cited who had employed these drugs alone or with adjuvant agents such as adrenalin, scopola-morphine, strychnine, or the addition of gummy substances had been employed to show that results varied greatly and complications were not excluded. Chaput's statistics with novocaine were more favourable. Barker's mixture of stovaine, glucose, and water, used by him and by Houghton, gave a good result. The deaths recorded by Chaput and Barker were not wholly due to the drug employed. Babcock's employment of stovaine with lactic acid, alcohol, and water, and the procedures of Angelisen, Athanasescu, who like Jonnesco added strychnine to the anæsthetic injected, were reviewed. That damage to the cord was possible seemed proved, but Professor Tuffier had not met with such cases. The mortality under the method he thought was difficult to ascertain as it varied in the different cliniques within wide limits. His own statistics were most favourable. Since novocaine had been used the death-rate was lower. The contraindications to, and indications for, the spinal route were fully dealt with, but on conventional lines, and Professor Tuffier's general conclusion was favourable to the method.

In the discussion which followed Mr. L. MCGAVIN (London) took exception to Jonnesco's statistics, which he regarded as unreliable. He spoke warmly in favour of intradural injection, and declined to accept the limits of its use imposed by the opener; indeed, from his experience he brushed aside the list of contraindications, except perhaps that of active pyæmic states. Adrenalin added to the danger, and the high puncture was, he thought, quite unjustifiable. The extradural method he considered was too unsatisfactory to compensate for the unfavourable results which even Professor Tuffier's own figures revealed.

Mr. C. A. LEEDHAM-GREEN (Birmingham) did not think the extradural method was difficult, but he regarded the analgesia produced as too feeble to have any value.

Other speakers, notably Mr. TYRREL GRAY (London) considered spinal injection most useful for acute abdominal conditions, especially for young children.

M. LE FILLIATRE (Paris) described at some length his method of spinal puncture in the lumbosacral region, and gave the results of his anatomical studies, submitting that they proved that injections into the sac were safer and more reliable. He appeared to have had little trouble from cocaine, the drug he selected.

In the course of a most effective address on

Local and Regional Analgesia,

Professor Dr. HEINRICH BRAUN (Zwickau) rehearsed the great advances which had been made in this method since Schleich first suggested infiltration analgesia. Professor Braun's cases revealed the truth of his statement, for practically every region of the body according to his statements, which were supported by illustrations of the operations performed, could be dealt with under local analgesia. The advance was due to the adoption of the method of [illegible] prac- [illegible] caine. [illegible] h very little suprarenin could be injected in large quantities, rendering even extensive areas insentient. This addition he deprecated for use in Bier's intravascular method of local analgesia, a method which he appeared to regard with favour. Beside giving a clear description of the combined methods of conduction and area blocking analgesia, Professor Braun dealt at [illegible] head and neck, [illegible] his technique f [illegible] practised upon them.

Mr. LEEDHAM-GREEN also reported upon this method. It had, he said, practically supplanted all other procedures for obtaining anæsthesia in his practice, and was, he thought, superior to spinal injection, which he therefore seldom employed. Bier's venous anæsthesia and Ranschoff's arterial method were, he submitted, too dangerous for use, indeed they had been rendered superfluous thanks to the degree of perfection to which infiltration and conduction analgesia had arrived. Traversing similar ground to Professor Braun he described his technique with attenuated novocaine solutions to which adrenalin or synthetic suprarenin was added. The addition of a trace of acid (Braun) to the saline solution enabled the anæsthetic fluid to be boiled without decomposition of the adrenalin or suprarenin taking place. Hydrochloride of urea and quinine had been less useful. The extremely complex ritual for local analgesia advocated by many authorities was, Mr. Leedham-Green thought, unnecessary, and he indicated how a simple procedure proved satisfactory provided the principle of the system had been mastered and was kept in view. He limited the employment of the method to operations upon areas easily and completely within the possibility of conduction analgesia; thus mammary carcinoma he would exclude as well as cases of abdominal operations. Kidney operations were unsatisfactory, but those on the lower urinary tract were satisfactory under local analgesia. Some cases—e.g., prostatectomy—were best done under a combined scheme of local and general anæsthesia; the technique of this was described. The drawbacks were the pain of the initial injections and the mental distress which nervous people experienced when they were conscious during an operation, and to meet this last objection he employed preliminary alkaloidal injections.

A discussion followed, which was summed up by the PRESIDENT.

FRIDAY, AUGUST 8TH.

Discussion on Recent Methods of General Anæsthesia.

Dr. R. H. FERGUSON (New Jersey, U.S.A.) had opened this discussion on the previous day with a report upon the

Open Ether Method of Anæsthesia,

but it had been found necessary to adjourn the completion of this report, which was a very voluminous one. Dr. Ferguson exhibited his ingenious mask and its coverings. He made the following postulations. The open ether method requires unrestricted interchange between the pulmonary air contents and the external air during the period that the ether vapour is being self-evaporated from the surface of the inhaler. Unless this is provided surgical anæsthesia cannot be obtained. The drop system is better than the semi-open, closed, or "vapour" methods. He had found that the results were sure, and the method had been tested upon a large number of cases in the United States and had proved satisfactory. In it the six essentials are: (1) No air must be admitted between the mask and the face—it must pass only through the gauze upon which the ether falls; (2) the patient must, however, have all the air required for his normal respiration, no definite relation between the quantity of air and the amount of ether vapour need exist; (3) there should be no waste of ether vapour into the room, as unless the administrator knows that all he presents to his patient really reaches him and is inspired no control of the anæsthetic is maintained; (4) the ether must fall in regular drops, the rate of dropping depending upon the operation, the lung capacity of the patient, and the rate of evaporation; (5) the ether must be evaporated before further dropping, as wetting of the gauze vitiates results; and (6) the mask should be kept upon the face until the operation is complete. Preliminary use of alkaloids was, he said, unnecessary, except in the case of very muscular or alcoholic persons.

The discussion which followed revealed some differences of opinion as regarded details of practice, the number of layers of gauze necessary, and so on. One speaker deprecated the introduction of new apparatus, as he contended that a semi-open system in which ether was evaporated from a chamber and in which a free airway existed gave better results than dropping.

The next report was upon

Rectal Etherisation

by Dr. J. H. CUNNINGHAM (Boston, U.S.A.), who regarded the system which he at present pursued—viz., forcing air over ether and through a tube into the rectum—as superior to the older methods in which ether vapour entered by virtue of its elastic expansion when warmed. His experience led him to regard the method as a valuable alternative one. He had met with few fatalities or serious after-effects.

The PRESIDENT pointed out that, although Dr. Cunningham had omitted to note the fact, it was he (the President) who revived the plan and had employed it, especially in operations on the thorax and on the upper air passages as well as for staphylorrhaphy in children. He regarded the use of an interceptor which he had introduced as essential to safety, since it was the condensed ether which caused proctitis. The less the bulk of vapour introduced the less the danger of meteorism, and so he did not encourage the use of an air-laden vapour.

Professor C. ARND (Berne) and Dr. A. L. FLEMMING (Bristol) continued the discussion and referred to the use of ether shaken up in saline and so introduced into the colon.

The general opinion was expressed that an inhalational anæsthetic was best for induction, as it lessened the danger of blocking at the ileocæcal valve.

Intravenous Infusion of Ether

was the subject of the next report by Professor L. BURKHARDT (Nürnberg). He pointed out the various dangers of inhalation, and affirmed that the intravenous route obviated them. The anæsthetics of the fatty acid series were, he thought, safer than were those of the veronal series, although he thought isopral might with advantage be infused as a preliminary to intravenous ether. The experiments on animals were more favourable to ether than to chloroform, as the latter was liable to engender deleterious tissue changes. In human beings 0·97 per cent. of chloroform and 5 per cent. (volume) of ether in saline were the strengths he advocated. Serious complications were rare in his 600 cases. Renal trouble, when it occurred, did so only in persons suffering from pre-existing kidney disease. Asphyxia was commonly due to over rapid entrance of ether. Aseptic precautions and washing out the vein after the operation prevented most local troubles, such as thrombosis. He reviewed the state of our present knowledge of infusion of urethrane, hedonal, chloral hydrate, isopral, veronal, medinal, chloramyl, and paraldehyde. In conclusion he enforced the importance of an accurate technique and a judicious selection of cases. Persons with a high blood pressure were unsafe for this method.

A carefully considered report followed by Dr. Z. MENNELL (London) upon

Intravenous Hedonal Infusion.

After considerable experience he was led to regard this drug as one of value for special operations such as those upon the brain, but extremely dangerous unless employed by those [illegible] first lesson to learn was to limit the dose When the skin reflex failed—i.e., when the patient ceased to respond to skin trauma—the dose was too great and danger might be apprehended. An improved form of Mr. C. M. Page's apparatus was shown and the technique of the induction was described. Hedonal infusion seemed to be contraindicated in any operations in connexion with the air passages, the danger [illegible] the loss of the laryngeal pro- [illegible] l pressure. [illegible] ıtracranial [illegible] upon the other [illegible] a person is suffering from pulmonary tuberculosis is the presence of tubercle bacilli in the sputum, and that all statements dealing with the value of tuberculin in that disease, which are based upon any other test, are for the particular purpose fallacious. We believe that the great majority of physicians who have had extended experience in the treatment of pulmonary tuberculosis, such as is obtained in the special hospitals for diseases of the chest, will support this limitation of diagnosis. If the cases diagnosed as pulmonary tuberculosis are divided into two classes—those in which tubercle bacilli are found and those in which they are not—the results of treatment in the latter class are remarkably better than in the former. This applies to any form of treatment, whether to the employment of tuberculin, to the routine method of fresh air and good food, or to any drug yet suggested. There are two obvious explanations which might be offered for this: (1) that the cases were not of a tuberculous character; or (2) that when tubercle bacilli are not found in the sputum the disease is not in such an advanced condition, and therefore that the chances of "cure" are more favourable. In order, however, that the latter explanation can be accepted, a more certain diagnostic test for tuberculosis must be established than has at present been introduced, and until this is forthcoming results based on such cases must be taken with the greatest reserve. Sir James Kingston Fowler's conclusions are a strong indictment of the indiscriminate employment of tuberculin, but he was of opinion that Dr. Bardswell's observations at King Edward VII. Sanatorium at Midhurst justified a continuance of the treatment, provided that every possible precaution was taken against harm being done.

The discussion at the Conference of the National Association for the Prevention of Consumption has once more brought to notice the precautions which must be observed in forming conclusions as regards any treatment of pulmonary tuberculosis. The disease undergoes so many vicissitudes that its manifestations may be mistaken. Some cases tend to spontaneous arrest; others to prolonged quiescence, giving false hopes of arrest, only to break forth into fresh activity after the lapse of months and years; others follow an unfavourable course from the commencement. Therefore, in order to arrive at an opinion on any therapeutic measure, many conditions are required, the most important of which we consider to be the following:—Observation must be made in a large number of cases (extending into hundreds), and the progress of these cases must be watched for at least five to seven years. To treat a patient for a year and then to pronounce the word "cure" will carry no conviction to those who have had a large experience in the disease. Under any suitable treatment, especially in hospitals, where every hygienic and dietetic measure can be adopted, a goodly number of patients will exhibit improvement often very marked; but after a few months their condition is frequently as bad as ever. In order to compare one form of treatment with another it is useless to consider effects after a few months only; the essential point is how many patients out of an extended series continue in good health after the lapse of several years. Further, any treatment under trial should be conducted by several physicians, if possible, so that the observations can be controlled by independent observers. Also, in reports upon any therapeutic measure it must be stated what precautions were taken for diagnosis, while a separate record must be made for those cases in which tubercle bacilli were found in the sputum and for those in which they were not. Unless such precautions are observed no trustworthy conclusions can be arrived at. There are many, however, who will support Dr. Mackenzie's statement that the only new form of treatment with any good claim to be a specific which has been brought forward during the last quarter of a century is tuberculin, but it must be administered in a careful and scientific manner, for it is a potent agent for evil as well as for good.

The Control of Motor Traffic.

The report of the Select Committee on Motor Traffic was issued last week, and the document contains some observations and recommendations of the utmost public importance. The fatalities chronicled in the report render the whole subject one of urgent medical concern. The Committee was appointed on Nov. 27th, 1912, "to inquire into the circumstances which have led to the large and increasing number of fatal accidents in the metropolis due to motor omnibuses and other forms of power-driven vehicles, and to make recommendations as to measures to be taken to secure greater safety in the streets." The Committee held 42 sittings, and examined 54 witnesses, recognising that the development of mechanical traction has wrought a complete revolution in the conditions of street traffic, with results which have given to the public increased facilities for getting from place to place, but which also have introduced greater risks for the pedestrian. For a time the new dangers of the streets were attributed to the fact that the traffic was mixed, part being horse-drawn and part motor-driven, and the opinion was freely expressed that as soon as the horse traffic was completely eliminated the public would learn to protect itself by a natural process of adaptation in the other conditions imposed by motor traffic—we should, it was thought, cultivate a sense in the new circumstances which would make the chance of accidents less likely than at first sight appeared. Subsequent events have not justified such a view.

There can be no doubt of the popularity of the motor-bus, to use the now accepted abbreviation. The returns placed before the Select Committee give the number of passengers in 1910 as 232 millions, while the estimated figure for this year is more than double that total. In 1910 there were motor services on 100 miles of streets, and there are now motor services on 350 miles of streets. So much for the wide public appreciation of the speedy motor-bus. What has this appreciation cost in the shape of loss of life and accidents? The Select Committee is of opinion that the record of the motor-bus in the matter of all accidents is most unsatisfactory, the total of fatal accidents for motor-buses in 1912 exceeding the total of fatal accidents for every class of vehicle combined in 1905, when the motor was for practical purposes absent from the streets. In

1907 the fatalities from the motor-bus, which now had arrived on the streets, were 35, while in 1912 they were 182, this figure referring to the metropolitan police area and the City. In 1912 the fatalities caused by power-driven vehicles within the county of London numbered 278, of which the motor-bus was responsible for 141, or more than half. Taking the number of motor-buses within the county of London in 1912 as 3000, the number of other licensed public carriages as 11,000, and estimating the private power-driven vehicles as 14,000, a very serious disproportion of fatalities directly due to motor-buses is shown. Two years before, in 1910, within the same area there were 156 fatalities, of which 53, or about one-third, were attributed to motor-buses. The Select Committee compares these figures with those relating to tramways, when *it appears that in 1907 the fatal accidents per* million miles run on the latter were 0·92, and in 1912 0·45, and the last figure is found by the Committee to work out at little more than one-fifth of the figures of the fatal accidents due to motor-buses in 1912. On the question of accidents this comparison is obviously in favour of the tramway, but it is well to remember that the tramway is an old and tried institution, whereas, as one important witness pointed out, the motor-bus is a new industry; the public is not yet fully accustomed to it, and the proportion of new drivers is very large. To this we may add that the tramcar driver's work is a much easier task than the omnibus driver's, for the former is relieved from the responsibility of steering and of keeping engines under control; he has only to retain his attention fixed on the possibilities of charging some one or something in the line of his gauge. In regard to safety appliances the Committee again makes a comparison between the motor-bus and the tramcar. Guards are being fitted to the sides of the omnibus which already have saved life, "but," *in the words of the report,* "*the great life-saver* on the trams is the front guard, and no evidence has been presented to your Committee to show that it has been possible yet to produce for the motor-bus a front guard which is not in itself a source of danger." The comparison between the motor-bus and the tramcar on the point of the safety of pedestrians must always be nullified by the difference of conditions. But the introduction of the motor-bus has brought into light the disabilities of the tramcar, and some believe that omnibuses will eventually supplant altogether the tram system, a further cogent reason being that the omnibus is not restricted to particular routes. Moreover, every day sees additional improvements being made in the construction of the motor-bus, and these improvements will continue, to the advantage of the public convenience, while organisation of traffic should be capable of receiving such attention as will greatly diminish the peril of motor traffic in the streets of the future.

Many of the valuable recommendations of the Select Committee are centred on this crucial point. As examples there may be quoted the observations of the Committee on such questions as the interference to traffic caused by the monopoly of roadway by trams, the desirability of more "refuges," the enforcement of a speed limit, the control of routes, the question of up and down-roads, of increased police powers, and so forth. It remains, however, to secure an authority which, while bearing the question of safety to the public prominently in mind, will not be unmindful *of the undoubted convenience to the public which* the introduction of the whole system of motor traffic has given. The Committee proposes that in all metropolitan traffic matters Parliament should be advised by one department, which should combine the traffic duties of the Home Office, Local Government Board, and Board of Trade, and that a new traffic branch of the Board of Trade be set up to perform the above and other duties. They suggest also that the veto of borough councils in regard to tramway schemes should be replaced by a full hearing before the new traffic board, which shall report to Parliament; and that county councils in the metropolitan area should have the widest possible powers, subject to confirmation by the new *authority which it is proposed should be set up.* It is outside our province altogether to discuss any question of politics in connexion with the bodies to which it is proposed to give powers of control in this matter. The public safety is the only thing we have in mind. It would be deplorable if any narrow interests or party advantages were allowed to influence suggestions which are made to bring motor traffic under a system of control that is designed to secure a safer state of the streets. The present risks to pedestrians in the streets of London form a matter of medical urgency, and no time should be lost in minimising them.

Annotations.

"Ne quid nimis."

NEW LIGHT ON THE PROBLEM OF PARASYPHILIS.

OF the many fertile discussions which marked the proceedings of the recent International Congress of Medicine one of the most instructive was that held at the last meeting of the Section of Neuropathology, on the nature of the condition known as parasyphilis. For years the medical profession has been taught, and has believed, that tabes dorsalis, general paralysis of the insane, primary optic atrophy—to mention only a few conditions—were diseases to be rigidly separated from cerebrospinal syphilis, inasmuch as though they were almost certainly of syphilitic origin, they were uninfluenced by antisyphilitic treatment, they ran a progressively degenerating course, and in many instances they developed at an extremely long interval after the primary infection. In fact, parasyphilis has always been regarded, in a general sense, as a morbid condition not exactly syphilitic, but post-*syphilitic.* With the discovery of the spirochæta pallida, however, the situation has been changing, and at the present time views are changing with great rapidity. The mere fact that the Wassermann reaction is positive in 95 per cent. or more of general paralytics is of itself a sufficient reason for regarding so-called "parasyphilis" with suspicion; all analogies suggest that where such a reaction is positive the actual toxic agent cannot be absent or in abeyance. The fact suggests, in short, that general paralytics are actively syphilitic. At the beginning of this year Noguchi described the occurrence of the spirochæta pallida in the brains of some 12 cases of general paralysis out of some 70 examined. Noguchi and Moore also found the organism in the cortex of other cases.

In March, Marinesco and Minea confirmed the observations. In May, Marie, Levaditi, and Bankowski also discovered the spirochæta in the cortex and subcortical tissues of three cases of the disease. Both Levaditi's silver method and the Chinese ink method of Burri were utilised for the purpose. At the meeting of the Psychiatry Section of the Congress at Claybury Dr. F. W. Mott exhibited specimens of the spirochæta in smears from the cortex of general paralysis treated with Indian ink. In one of the cases recorded by Marie, Levaditi, and Bankowski the spirochætæ in the frontal cortex were still actually mobile. Such facts obviously are of paramount importance. They are calculated to revolutionise the accepted opinions on the nature of parasyphilis. At the meeting above referred to Dr. Nonne, of Hamburg, an acknowledged authority on the whole subject, mentioned quite recent experiments in which guinea-pigs had been rendered syphilitic by means of the serum of general paralytics, the spirochæta being recovered in their testicular tissue. At the same eventful meeting of the section Dr. Swift, of the Rockefeller Institute Hospital, said he had just received a further communication from Noguchi to the effect that he had successfully inoculated rabbits with the cerebral substance of general paralytics and had recovered the spirochæta in their tissues. In view of such experimental and pathological data it is little wonder that at the meeting more than one authority expressed the view, which not a few neurologists now are inclined to favour, that so-called parasyphilis is really parenchymatous syphilis—i.e., syphilis of the nerve elements themselves—whereas so-called cerebrospinal syphilis is syphilis of the supporting or interstitial structures. If the spirochæta is found with any regularity and certainty in the brain of general paralytics, why do these not respond to antisyphilitic treatment? It is now known that the spirochætæ lie free in the cortical and subcortical tissue spaces, away from blood-vessels, and that they cannot therefore be reached by arsenic and other medicaments presumably exerting their effects *viâ* the blood stream. For the last two years Dr. Swift has been working in the Rockefeller Hospital at a novel method of reaching the spirochæta in these diseases. An injection of salvarsan is given intravenously to a patient suffering with, say, general paralysis. One hour later his serum is withdrawn, centrifugalised, diluted with saline, heated to 56° C. for half an hour—a proceeding which Dr. Swift has shown greatly increases its spirochæticidal properties—and is injected into the cerebrospinal fluid directly by lumbar puncture. In all but three of 32 cases thus treated Dr. Swift has seen a marked modification of the Wassermann reaction, which either becomes feebly positive or negative. If these results are corroborated it is clear that we shall have to modify our views on the hopelessness of antisyphilitic therapeutics in general paralysis. In any case, the problem of parasyphilis is in a fair way of being solved, and we may well expect that ere long another chapter of neuropathology will have been entirely rewritten.

THE ALBUMIN REACTION.

THE presence of albumin in the sputum as an aid to the diagnosis of active pulmonary tuberculosis has been credited and discredited by a number of physicians during the past decade. In THE LANCET of August 9th we published a contribution to the subject by Dr. Percy B. Ridge and Dr. H. A. Treadgold. Attention to the literature dealing with the diagnostic significance of albumin in the sputum revealed a degree of confusion as to the interpretation of results obtained on a material of 2000 cases. Dr. Ridge and Dr. Treadgold therefore decided to examine at least an equal number of specimens of sputum themselves with a view to establishing a relation between active pulmonary tuberculosis and the appearance of albumin in the sputum and the pathological condition associated with albuminous sputum. The authors insist on the necessity of discarding all clear mucin and selecting only muco-purulent portions of the sputum for examination. If this precaution is taken they find that 98·9 per cent. of specimens of sputum containing tubercle bacilli also contain albumin. The method also revealed the presence of albumin in the sputum recovered from cases of pulmonary œdema, bronchiectasis, pulmonary neoplasm, lobar pneumonia, broncho-pneumonia, and aneurysm. We are of the opinion that the value of these observations would have been enhanced had the authors carried out a series of tests on groups of patients over a long period in relation to the progress or retrogression of the pathological conditions under the influence of treatment. With reference to the pathological condition associated with the appearance of albumin in the sputum Dr. Ridge and Dr. Treadgold believe that it is of the nature of an alveolitis. They base their opinion on the fact that in specimens containing albumin there is a relative increase in the number of alveolar cells, and that the cases producing this sputum show clinical evidence of consolidation of some portion of the lung. The authors do not state what experimental evidence has led them to this conclusion, nor do they define what they mean by alveolitis or alveolar cells. Much careful investigation is necessary before their conclusions can be accepted as a fact, but they are to be congratulated on an arduous piece of work faithfully performed. Whether the appearance of traces of albumin, associated with a relative increase in "alveolar" cells, in the sputum will eventually be shown to be of significance in the early diagnosis of pulmonary tuberculosis remains problematical.

RELAPSING FEVER IN CENTRAL AMERICA.

AT the present moment little is heard of the ravages of relapsing fever in Europe, though during last century there were some very severe epidemics in our own country, particularly in Ireland and Scotland. More recently Russia has had some unpleasant experiences of the malady. At one time the origin of this scourge was attributed to famine, but it is now recognised that the malady is a form of spirochætosis and that its spread, in Europe at all events, is associated with the bites of infected lice or bugs, though in America the transmission of the malady is attributed to ticks. During the interesting discussion on relapsing fever which took place in the Tropical Medicine Section of the International Congress of Medicine in London, Dr. S. T. Darling, chief of the laboratory staff of the Isthmian Canal Commission, stated that since the American occupation of Panama the disease had never succeeded in obtaining a foothold, notwithstanding that it had been introduced repeatedly into the Canal zone by labourers from South America, and especially from the adjoining Republic of Colombia, of which Panama at one time formed a part, and where the malady is well known to be endemic. Dr. Darling says that in his experience white men are more susceptible to this disease than the coloured races, the observed attacks being in the proportion of 9 of the former to 4 of the latter. The white man contracts this infection in the same way as he does certain others in the tropics, by his visits to the native villages. It has been established beyond dispute that the specific parasite of relapsing fever in Colombia (as in the United States) is spirochæta novyi, and that its transmission is due to a tick, ornithodoros tourichatus, which infests the huts of the natives; while in Panama, though the parasite is the same, the transmitting agent is a different tick, ornithodoros talaje. Dr. Darling directs special notice to the fact which, he thinks, has not received sufficient attention—namely, that the forms of relapsing fever met with in Europe, America, and Africa, each due to a different spirochæta (respectively spirochæta recurrentis, spirochæta novyi, and spirochæta duttoni), display differing types of the febrile paroxysm. Some American text-books of medicine, while describing the American form of relapsing fever, give, it seems, illustrative charts of the temperature taken from cases of the European variety of the disease. For this reason Dr. Darling believes that cases of American relapsing fever may be overlooked, and owing to the "spiked" character of their temperature charts may be mistaken for malaria or some other kind of fever. It is probably due to the excellence of the general sanitary measures, carried out in the Panama Canal zone by the specially skilled staff, of whom Colonel W. C. Gorgas is the distinguished chief, that relapsing fever has never made any headway, though repeatedly imported into that region from the neighbouring republic of Colombia, where, apparently, little or nothing is done to interfere with the spread of the malady, or to prevent its exportation to adjoining countries.

PAROXYSMAL ŒDEMA OF THE LUNGS.

ACUTE œdema of the lungs is usually regarded as a rare and almost invariably fatal affection, and little attention is devoted to it in text-books of medicine. In a paper published in the June issue of the *Bristol Medico-Chirurgical Journal* Mr. C. E. S. Flemming contests both its rarity and its immediate fatality, giving an account of four cases which he has encountered. The striking feature of these was the recurrent nature of the condition, the attacks lasting altogether over a period of weeks or even years in one instance. The onset is usually heralded by irritation and dryness in the throat, with anxiety or vague fear of some impending danger. The patient cannot lie down, his breathing becomes rapid and oppressed, and there is pallor and often cyanosis The cough increases, with expectoration of a frothy coagulable fluid which may contain blood. Auscultation reveals the presence of râles all over the chest, and the pulse is small and frequent. In about half an hour the symptoms diminish in intensity, and the exhausted patient may fall asleep. For the next day or two the moist sounds in the chest persist, but then disappear, leaving no signs of trouble until a fresh attack supervenes. This may take place in one or two weeks, or not for some months. The onset is most often at night, and no definite exciting cause can be ascertained. Of the author's four cases, two were in men and two in women, and the ages varied from 54 to 73 years at the time of death. The youngest patient was a woman of alcoholic habits, with a trace of albumin in her urine. She died in her third attack about six weeks after the first occurrence of this form of œdema. A second female patient who was the subject of mitral incompetence had many attacks at intervals of a few weeks, and finally committed suicide in a fit of depression. A man, aged 68, died in his second attack, while the fourth patient, a man of 70 when first seen, who showed signs of arteriosclerosis, lived for over two years, suffering at intervals from attacks of pulmonary œdema. Mr. Flemming notes the resemblance of these to cardiac asthma, but the frothy albuminous sputum is very different from that seen in asthmatic seizures. He believes that the explanation of the symptoms lies in the failure of the left ventricle, owing to which the pulmonary vessels become engorged with blood. The pallor, cold skin, small pulse, and sense of impending death all point to cardiac failure, while Welsh produced a similar condition in the rabbit by squeezing the left ventricle and paralysing its action. The cause of the sudden failure is not clear, but accumulation of some toxin in the blood is conceivable. In treatment nitrite of amyl was disappointing. Hot fomentation to the chest and inhalation of oxygen proved of some benefit, but the most effective remedy was a hypodermic injection of morphine with atropine, which produced immediate relief in one instance. It should be tried in all such cases.

PHYSIOLOGICAL ACTIVITY IN THE TROPICS.

AN inquiry into one subject often leads to the discovery that many of the data collected, if collated to that end, will throw light on other subjects, and scientific research is fortunate when the intrinsic value of evidence collected for one object is recognised before the evidence is lost sight of. A good example of this situation will be found in a paper by Major Weston P Chamberlain,[1] in which are recorded observations made on 1000 healthy soldiers stationed in the Philippines during 1909, 1910, and 1911, with the object of determining whether the complexion type of white men, or the use of clothing obstructive to actinic rays, exercises any influence on the ability of the individuals to endure tropical service. Both these questions were answered in the negative, as was noticed in THE LANCET at the time,[2] but the data have been re-examined by Major Chamberlain in reference to the light thrown by them on the relative importance of the climatic factor and the tropical disease factor in the difficulties attending colonisation of the tropics by whites. The observations were made at 13 different points in the Archipelago, ranging from 15° to 6° N., mostly at the sea level, but one was inland at an altitude of 600 feet The observations affect the body temperature, pulse- and respiration-rates, blood pressure, influence of residence on body weight and on the blood and urine, influence of exercise, effects of the climate on the nervous system, and the action of the digestive system in the Philippines. The results of the observations seem to show that there is no appreciable variation for season, or for complexion type (fair or dark) in respect of temperature, which averages 98·7° F. The average pulse-rate is 77·3, the average respiration 19·3, the average blood pressure with an average age of 25 3 years, and using a five-inch armlet (Cook's modification of Riva-Rocci's apparatus) was 115 to 118 mm. mercury, the average loss of weight was 1·34 lb per cent. in a year, irrespective of the size of the subject. Apart from parasitic diseases in healthy soldiers there is no definite anæmia produced by any variation in any of the particulars of environment. The average specific gravity of urine at the beginning of observations was 1019·9, 5 men had albumin, and 10 showed casts; at the end the average specific gravity was 1019·7, while 6 had albumin and 13 showed casts. The effect of exercise was only what would be expected in warm weather—viz., acceleration of pulse and respiration, slight increase of temperature, and a considerable rise in blood pressure. As regards the effects on the nervous system, mental and nervous diseases, which were very prevalent during the early years of occupation, the author believes to have been due to nostalgia and tedium, with resulting alcoholic and venereal excesses; for under the improved conditions prevailing for some years prior to the observations the numbers reported as sick for mental and nervous diseases, and the deaths from suicide, have not materially differed from those obtaining among troops stationed in the United States. The author's observations do not support the theory that the diet for the tropics should differ materially from that for the temperate zones. As a result of these observations Major Chamberlain concludes that there is room for doubt whether light or actinic rays are factors in tropical morbidity or mortality. He found that dark subjects possessed no advantage over fair. The injurious effects sometimes attributed to light, he says, can be produced by heat and humidity in the absence of light, and to these factors he attributes such influence as the Philippine climate exerts on the white man. While the white skin absorbs heat less readily than the brown or black the latter has more sweat glands and radiates heat more freely. Suitable clothing, light in colour, a single layer sufficing to protect from the ultra violet rays, will protect the white man from the effects of heat and humidity. As to whether under improved sanitary conditions it will be possible for the white race to colonise permanently in the tropics Major Chamberlain points to Hawaii, and particularly to Barbados—where there are many men and women of pure English stock who have never been to a temperate climate yet are physically and mentally as well equipped as Europeans. These examples, with the successes so far in the Philippines, Cuba, Panama, and elsewhere, raise the hope that the complete conquest of certain parts of the tropics by the white race is not beyond the possibility of realisation. These later successes, however, are hardly yet, it seems to us, of sufficient duration to be of much value. The deterioration of Caucasian stock in the tropics, when it has occurred, has surely been rather a progressive condition than a fulminant one.

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[1] Some Features of the Physiologic Activity of Americans in the [illegible]
Philippines. [illegible]
U.S Army. [illegible]
Medicine, off [illegible]
Edited by Cr [illegible]
Orleans.

[2] THE LANCET, May 11th, 1912, p. 1287.

CHOLECYSTITIS AND CHOLELITHIASIS IN PREGNANCY.

THOUGH it is generally recognised that cholecystitis and cholelithiasis, like appendicitis, may complicate pregnancy and the puerperium, little is said on the subject in the text-books. However, an American writer, De Lee, says, in his recent "Principles and Practice of Obstetrics": "It seems that pregnancy is a factor in the development of gall-stones, and attacks of biliary colic are not rare in the gravida. These seldom occur before the fifth month. Labour may cause pain in the full gall-bladder." In *Surgery, Obstetrics, and Gynecology* for July, 1910, Peterson published an exhaustive paper on the subject. He reported a case of obstructive cholelithiasis in a multipara six months pregnant which proved fatal from post-operative hæmorrhage. He collected from literature 24 cases of gall-stones complicating pregnancy and 10 complicating the puerperium. In the *Boston Medical and Surgical Journal* of May 8th, 1913, Dr. R. M. Green has reported the following cases. A woman, aged 22, had been married three years, during which time she had one miscarriage and one labour at term. In August, 1911, she again became pregnant. On Nov. 4th a slight bloody discharge from the vagina began and continued till the 14th, when profuse bleeding and expulsion of a three-months fœtus occurred. When seen on the morning of Nov. 15th she was still bleeding but was not exsanguine. The pulse was 108 and the temperature 100° F. The placenta was protruding from the os. Under ether the cervix was dilated and a large amount of placental tissue removed. After the operation the temperature did not fall and she complained of general abdominal pain. An intra-uterine douch was given, and the temperature was normal on the 18th; but on the 19th there were acute pain in the right upper quadrant of the abdomen, considerable tenderness, and muscular spasm and nausea. On the 20th these symptoms continued and the temperature rose to 100°. She was slightly jaundiced and there was a trace of bile in the urine. On the 21st the pain and fever had subsided, but the tenderness and spasm continued, and the leucocytes numbered 17,600. On interrogation she acknowledged that she had had similar attacks of pain before but less severe. Convalescence proceeded till the 26th, when a second attack of pain occurred, and a third, but less severe, occurred on the 30th. Each lasted about three days. The physical signs in each attack were the same. Intercurrent cholecystitis was diagnosed. On Dec. 7th a high right rectus incision was made. The common bile-duct was palpated but no stone was felt. The gall-bladder was somewhat thickened and surrounded by a few slight adhesions. It was opened, and an ounce of thick, dark bile escaped. This yielded a pure culture of staphylococci. The gall-bladder was stitched to the peritoneum at the upper angle of the wound and drained. Recovery was uninterrupted. In the second case the patient was a negress, aged 38. She had been married seven years, during which two normal labours occurred. Menstruation ceased on June 20th, 1911. On Nov. 14th a slight bloody discharge began and became profuse on the 17th, when a four months fœtus was expelled. Some dark bloody discharge continued. When first seen on the 29th the temperature was 100°. The vaginal fornices were tender, but no masses were felt. Under ether the os was dilated, and some tissue was removed with the curette, which the pathologist pronounced inflammatory. The temperature remained at 100°, which was attributed to bronchitis which had developed. She complained of headache and had profuse diarrhœa. There was moderate tympanites. On Dec. 25th a severe attack of pain in the right upper quadrant occurred requiring administration of morphine. There were marked tenderness and spasm in the region of the gall-bladder. The pain subsided, but on Dec. 7th the temperature rose to 101·8° and the conjunctiva became jaundiced. On the 10th the pain recurred, and a rounded tense mass was felt projecting below the right costal border. Acute cholecystitis, probably associated with obstruction from a calculus, was diagnosed. On operation the gall-bladder was found tense and purplish. On opening it two ounces of colourless cloudy tenacious mucus escaped. On culture this yielded a pure growth of the colon bacillus. In the opening of the cystic duct was a greyish-yellow calculus. The operation was completed as in the previous case and recovery ensued. Dr. Green draws the following conclusions: (1) There seems to be a definite causal association of cholecystitis and cholelithiasis with pregnancy; (2) symptoms due to either of these conditions may occur during pregnancy of the puerperium; (3) gall-bladder disease is not a cause of miscarriage, but the latter may induce the development of active symptoms; and (4) surgical treatment is indicated.

CEREBRAL ABSCESS SECONDARY TO AMŒBIC ABSCESS OF THE LIVER.

IN *St. Bartholomew's Hospital Journal* for July Professor Llewellyn P. Phillips, of Cairo, has reported a case of a rare complication of amœbic abscess of the liver—cerebral abscess. In December, 1912, he saw a man who had returned from England suffering from severe headache. He had dysentery in Egypt during the summer and went home on leave. A hepatic abscess formed while he was in England, and was opened early in September. His general health improved, and although he had not quite regained his strength he returned to Egypt. At Marseilles he felt very ill and rested a couple of days before embarking. On board the steamer he suffered from intense headache. On arrival at Cairo he immediately went to hospital. He was suffering from intense occipital headache. In the evening the temperature was 101° F. and the pulse 60. The pain was so great that morphine was given. Next morning Kernig's sign and a *tâche cérébrale* were present. He could not see well, but the pain prevented him from giving a clear account. That night the temperature fell to 97°. On the following day he was in the same condition. Lumbar puncture yielded a little straw-coloured fluid, which proved sterile. In the evening he became delirious and next morning he died, the illness having lasted 11 or 12 days from the onset of cerebral symptoms. The necropsy showed a small cavity in the left occipital lobe containing about two drachms of semi-purulent thick fluid. The straw-coloured cerebro-spinal fluid was an unexpected finding difficult to explain. In the *Archives Provinciales de Chirurgie* for January, 1912, Dr. Legrand, of Alexandria, has published a paper entitled "Les Abscès Dysentériques du Cerveau (Amibiase Encephalique)." He refers to 45 cases, in 43 of which the cerebral abscess accompanied or followed an abscess of the liver; in the remaining 2 cases there was no hepatic abscess, but in 1 amœbæ were found in the brain. He refers to 9 cases in which amœbæ have been demonstrated in cerebral abscess. To ordinary bacteriological methods these abscesses are sterile, but Dr. Le Grand has demonstrated by anaerobic methods that a micrococcus or streptococcus may occasionally grow. He thinks that symbiosis of the amœbæ with one of these organisms causes the abscess. The amœbæ are found in the wall of the cavity. Professor Phillips points out that under ordinary circumstances the liver acts as a filter for the portal circulation and arrests the amœbæ which may have penetrated into the radicles of the portal vein. Some may pass into the vena cava and infect the lung. Just as occasionally hepatitis may be engendered without preceding dysentery, so can occasionally the lung, or very rarely the brain, be infected, while the liver escapes. In 3 of the cases of cerebral abscess an operation was performed, but all were fatal.

THE TREATMENT OF EMPYEMA IN INFANTS AND YOUNG CHILDREN.

IN the June number of *American Medicine* there is a very instructive article by Professor L. Emmett Holt on the Comparative Value of the Various Methods of Treating Empyema in Babies, based on a study of 154 cases in patients up to the age of 3 years Of these two-thirds were males, and the pneumococcus was present in pure culture in exactly half. The general mortality amounted to 56 per cent.; it was highest (79 per cent.) in the purely streptococcal cases, 24 in number. The death-rate decreased with advancing age. Of the children attacked during the first year of life 73 per cent. died; during the second year, 58 per cent.; and during the third year, 16 per cent. only. In analysing the causes of death Professor Holt comes to the conclusion that apart from cases of generalised infection with fatal complications, such as meningitis and pericarditis, the factor chiefly responsible for the high mortality is imperfect expansion of the lung after operation. "For about a week after operation the children frequently do well; then the temperature goes higher and shows wider fluctuations, though the discharge is free." This is followed by progressive exhaustion, the child dying three or four weeks after operation. Analysis of the results obtained by various methods of treatment shows that children over 2 years of age do well under any plan which includes incision and drainage, while younger children do best if treated by "siphon drainage." The technique employed at the Babies' Hospital, New York, where Professor Holt's patients have been treated, consists of a modification of the German plan introduced by Bülau. After exploratory puncture the needle is left *in situ* as a guide; a puncture-incision is made with a small scalpel and a rubber catheter of a size to fit tightly into this opening is introduced about 1 inch of its length. This is kept in position by means of a carefully arranged tape. The distal end of the catheter tube is clamped with artery forceps till all the connexions are completed. The tube, which is 8 to 10 inches long, is connected by a piece of glass tubing with a long rubber tube affixed to an ordinary wash-bottle standing on the floor beneath the child's crib. The bottle is plugged with a rubber stopper, through which a glass tube passes to a level below that of the normal saline solution which the bottle contains. The whole apparatus is, of course, carefully sterilised. Continuous drainage without the formation of a pneumothrax is thus secured. The saline in the bottle must be changed as often as necessary, the tube being meanwhile clamped; and blocking of the tube must be prevented by manœuvres which Professor Holt describes. After a few days the tube is apt to become loose in the incision; it may then be removed, the chest being left to drain into dressings in the ordinary way. Two advantages claimed by Professor Holt for this plan are that it prevents collapse of the lung and that it obviates the distress caused by daily dressing. He regards resection of rib as unnecessary except in chronic cases, simple incision securing all the drainage that is required. The imperfect results that follow operations for empyema n infants are particularly disappointing because in older children they are so remarkably successful; the siphon method, backed by Professor Holt's influential advocacy, should therefore commend itself to practitioners as worthy of trial.

THE NUMBER OF MEDICAL STUDENTS IN GERMANY.

ONE of the consequences of the introduction of National Insurance in Germany has been the growing number of students of medicine, and the sick clubs do their utmost to promote the recruiting to the ranks of the medical profession, as by this means they hope to be able to keep the rates of remuneration as low as possible by fostering competition in the struggle for life amongst the doctors. These steadily growing numbers are now becoming a serious menace to the future of the profession, and the situation is viewed with some apprehension. During the past winter semster there were in all 13,380 students of medicine inscribed on the rolls of the German universities, against only 5926 in the years 1904-05. The number of practitioners obtaining their qualification at present increases at the rate of 150 yearly, so that from a total of 1650 obtaining their qualification in 1913-14 this number will increase to 2500 in 1919-20. At present there are 33,527 qualified medical practitioners in Germany, and assuming that the annual loss to the profession through death or retirement averages *650 in the years 1919-20, there will be* no less than 44,227 doctors endeavouring to find a livelihood out of their professional work. It is pointed out that such a state of affairs must lead to an economic catastrophe, as at least one-third of these practitioners will be unable to make a living.

ON July 30th the Home Secretary made an order, which is now in force, extending the provisions of Section 8 of the Workmen's Compensation Act, *1906*, to writer's cramp, and consolidating the previous Orders of June 22nd, 1907, and Dec. 2nd, 1908, with an alteration in regard to the definition of nystagmus, which is now scheduled as "the disease known as miner's nystagmus, whether occurring in miners or others, and whether the symptom of oscillation of the eyeball be present or not." The Order provides that a person suffering from writer's cramp shall not be entitled to compensation for a longer period than 12 months.

THE President of the Board of Education has appointed a Departmental Committee to inquire as to the steps by which the time is yet ripe. The stigma of suffering from venereal disease is so great, and the desire for concealment, with its consequent resort to quacks and self-treatment so marked, that until a more reasonable attitude towards the whole subject has penetrated to the popular mind, notification would be likely to increase the number of concealments. Notification without names or addresses, as in Denmark, does not appear to have any great advantage even in the matter of providing statistics. He considers that if full notification were adopted in this country later on, it would have to be accompanied by legislation to prohibit the treatment of venereal diseases by unqualified persons, as has been done in Australia and elsewhere.

Although the report deals with "venereal diseases," it is essentially concerned with syphilis, and the references which it contains to gonorrhœa are somewhat meagre. The administrative problems involved in the repression of gonorrhœa are in several respects special, and call for further study.

The report is prefaced by an introductory statement by the medical officer of the Local Government Board, Dr. A. Newsholme, in which attention is drawn to the great importance of the subject to public health, and the nature of the principal conclusions of the report.

THE NATIONAL ASSOCIATION FOR THE PREVENTION OF INFANT MORTALITY AND FOR THE WELFARE OF INFANCY.

THE National Association for the Prevention of Infant Mortality held a Conference on August 4th and 5th at the Caxton Hall, Westminster, under the presidency of the Right Hon. **JOHN BURNS**, M.P. There was a large attendance, among which were 23 official delegates from foreign countries, the colonies, and the overseas dominions, besides representatives of the public health and Poor-law authorities.

In his presidential address Mr. **BURNS** dwelt on the need for adjusting the health of the people with the conditions developing under the growth of trade and the increase of urbanization. These were disturbing factors of the quiet, rest, and fallow conditions so necessary for a happy childhood. It was not an accident that the clergyman and the gardener had relatively the longest life. He referred to the influence of working mothers on infant mortality, illustrating it by a comparison of two similar communities, Burnley and Battersea, where the infant death-rates were respectively 171 and 83 per 1000. This he attributed to the fact that in Burnley a large percentage of the mothers were at work, while in Battersea they were at home. For at least four months before the baby was born, and for longer afterwards, mothers should be mothers and not machines. Doctors' babies died at the rate of only 40 per 1000. The rate in the upper and middle classes was 77, among artisans 100 to 130, among miners 160, unskilled labourers 150 to 250, and agricultural labourers, notwithstanding low wages, only 97 per 1000. In the seven years since the Conference began the saving of human lives compared with the previous seven years was 545,000, and of infant lives 200,000. Mr. Burns deplored the number of childless women of the better classes who were wasting their motherly devotion over pet dogs and so forth, when those who knew the existing conditions could provide them with human substitutes for their care. He made a reference to cancer and to sexual diseases, and spoke of a report in preparation by the Local Government Board on the latter.

The sections were two, Administrative and Medical. At the morning session of the Medical Section Mr. **PEASE**, President of the Board of Education, who presided, said that the Board realised that the physical condition was an essential preliminary consideration to education. Referring to the reduction of infant mortality in the last few years, he attributed it to two causes: slight improvement in the physical condition of childbearing mothers and better infant care and management. The Board was doing its best to disseminate information through the schools, and by encouraging schools for mothers, and the instruction of girls in the care of infants. He praised the efforts of voluntary workers.

Papers were read in the morning on subjects relating to Education and Infant Hygiene by Dr. L. E. La Fetra (New York), Dr. C. Paget Lapage (Manchester), Dr. F. Truby King (New Zealand), Dr. Caroline Hedger (Chicago), Dr. Christopher Addison, M.P. (London), and Miss Gregory.

At the afternoon session, under the presidency of Sir **GEORGE NEWMAN**, M.D., Milk Problems were discussed by Dr. Henry L. Coit (New Jersey, U.S.A.), Dr. Eric Pritchard (London), Dr. A. E. Naish (Sheffield), Dr. G. R. Pisek (University of Vermont, U.S.A.), Dr. Fritz Talbot (Boston, U.S.A.), and Frederick Langmead (London). On Tuesday in this section Dr. **CHARLES A. HODGETTS** (Canada) was chairman, and papers were read on subjects relating to Antenatal Hygiene by Dr. J. W. Ballantyne (Edinburgh), Dr. J. M. Munro Kerr (Glasgow), Dr. F. W. Mott (London), Dr. P. Van Ingen (New York), Mrs. Fowler (Birmingham), Dr. J. L. Huntington (Boston), and Dr. A. K. Chalmers (Glasgow).

Dr. Chalmers dealt with the working of maternity benefit under the Insurance Act. Since the Act came into force there had been a great decrease in notification of births by the staffs of maternity hospitals, and a corresponding increase in notification by private practitioners and midwives. The working of the maternity benefit had been satisfactory on the whole. In 56 cases no benefit had been received, though one of the parents was insured, and in 137 cases neither was insured, though inquiry showed that they should have been. Usually the money was paid direct to the husband, but in some cases where the woman applied showing that the husband would abuse the benefit payment was made to her. One result of the Act had been a rise in midwives' fees. He discussed the abuse of benefit money.

The Administrative Section was presided over on Monday by Dr. **ARTHUR NEWSHOLME**, C.B. In the morning there were papers relating to the Responsibilities of Central and Local Authorities in the Matter of Infant and Child Hygiene, by Mr. F. E. Fremantle (Hertfordshire), Dr. Charles A Hodgetts (Canada), Professor Richard Caton (Liverpool University), Dr. H. J. Gerstenberger (Cleveland, U.S.A.). A paper by Miss Julia C. Lathrop on the Federal Children's Bureau of the United States was taken as read. In the afternoon papers on various administrative subjects were read by Mrs. Kitson Clark (Leeds), Dr. Helen Macmurchy (Toronto), the Hon A. A. Kirkpatrick (South Australia), Dr. H. L. K. Shaw (Albany), Dr. S. G. Moore (Huddersfield), and Dr A. Jasper Anderson (Cape Town).

On Tuesday the Administrative Section was presided over by the Countess of **ABERDEEN**, who in her address referred to the Viceregal Milk Commission appointed a few years ago. The Commission, she said, had travelled all over Ireland, and taken evidence from Manchester, Liverpool, Birmingham, and Glasgow, and was about to issue a unanimous report. The Commission would dwell on the importance of milk depôts. The question in the towns was shown to centre largely round organisation for bringing the consumer and the producer together. The importance of winter dairying, the keeping of records, improvement in the milk yield of cows, and the use of goats would be referred to. The second part would deal with the preservation of milk from contamination.

Papers relating to the Administrative Control of the Milk Supply were read by Professor J. M. Beattie (University of Liverpool), Assistant Surgeon-General John W. Kerr (U.S. Public Health Service), Dr. W. G. Savage (Somersetshire), Professor E. W. Hope (Liverpool), and Mr. J. W. Brittlebank (Liverpool).

In the afternoon of August 5th a joint meeting of the two sections took place, when resolutions were passed urging: That maternity benefit be made the property of the mother; the paying of adequate attention to good bodily health and development and fitness for maternity in young girls, as well as to education; the [illegible]; better greater completeness in medical certificates of death; better training for the midwife's certificate; a more important place in the medical curriculum for infant hygiene; an international conference to inquire into the causes, treatment, and prevention of venereal diseases; and the presentation to Parliament of a Milk Bill.

The next Conference will be held at Liverpool.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Treatment of Tuberculosis.

THE Public Health Committee of the London County Council has reported with reference to the instruction of the Council in February to prepare forthwith a scheme for dealing with tuberculosis throughout the country.[1] The committee noted a change of view on this subject on the part of the Local Government Board; the Board apparently no longer desired the Council to prepare a scheme dealing with dispensary provision, but desired the metropolitan boroughs to make arrangements, the Council to act merely as a critic. The committee had asked for a clear statement from the Board on this point. It would be realised how difficult it was to prepare a comprehensive scheme if the local authorities were dealing with the problem simultaneously from a local standpoint and without regard to the needs of London as a whole. Several borough schemes already prepared provided for the establishment of municipal dispensaries to the exclusion of existing provision, whereas it was manifestly desirable that regard should be had to existing available institutions.

The Council, at the request of the committee, expressed approval of the following principles in regard to provision for tuberculosis treatment :—

1. [illegible]

otherwise; and that the Local Government Board be so informed.

Regulation of Lying-in Homes.

Notice has been given of the intention to promote legislation in the session of 1914 to obtain power to license lying-in homes in the county of London. The Midwives Act Committee stated in recommending this step that in administering the Midwives Acts it had been impressed with the necessity, both from the sanitary and from the moral point of view, for some measure of public control being exercised over lying-in homes. Over 100 houses and institutions at which pregnant women were received were known to exist in London, and the necessity for conferring on local authorities powers to regulate such places was recognised to some extent in the two Bills for the amendment of the Midwives Act, 1902, which were introduced in the House of Lords in the session of 1910. Moreover, representations had recently been made by delegates from various charitable societies and others that, as the result of the passing of the National Insurance Act, 1911, unmarried women who formerly obtained admittance to Poor-law institutions for their confinements, now in many cases received maternity benefit under the Act and entered lying-in homes, at which, in some instances, they were subjected to immoral influences

School Medical Service: Reply to Criticisms by the Board of Education.

Dealing with the criticisms of the school medical service in London contained in the letter of the Board of Education, as reported in THE LANCET of August 2nd, the Education Committee promises a report in due course as to the extension of the functions of the assistant medical officers suggested by the Board. As to the criticism that certain inspection work was undertaken by nurses instead of by doctors, the committee stated that the nurses must necessarily do some routine work in preparation for the visit of the doctor and in order that he might inspect the requisite number of children at each of his visits. The physical measurements carried out by the nurses in 1911 were in complete agreement with the standards arrived at in former years from measurements made by medical officers. Arrangements, however, were being made for the school doctors to take the physical measurements on all occasions of children suffering from malnutrition. The school doctors had been instructed to examine all cases of defective vision reported as a result of the preliminary examination by the nurse, and the standard of defect was to be made more stringent. The preliminary examination of children for hard-of-hearing classes was made by the school doctor, and some cases were further specially examined by the Council's otologist.

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[1] THE LANCET, Feb. 15th, 1913, p. 476.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns, 7589 births and 4125 deaths were registered during the week ended Saturday, August 9th. The annual rate of mortality in these towns, which had been 11·3, 11·0, and 11·6 per 1000 in the three preceding weeks, further rose to 12·0 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 11·4, against 10·8 per 1000 in London during the same period. Among the several towns the death-rate in the week under notice ranged from 4·5 in Wimbledon, 4·6 in Cambridge, 5·0 in Merthyr Tydfil, 5·1 in Willesden, and 5·8 in Oxford, to 18·4 in Walsall, 19·4 in Dewsbury, 19·5 in Wigan, 19·8 in Aberdare, and 21·2 in Birkenhead.

The 4125 deaths from all causes in the 96 towns were 172 in excess of the number in the previous week, and included 562 which were referred to the principal epidemic diseases, against numbers rising from 281 to 448 in the five preceding weeks. Of these 562 deaths, 391 resulted from infantile diarrhœal diseases, 67 from measles, 45 from whooping-cough, 25 from diphtheria, 21 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases in the week under notice was equal to 1·6, against 1·2 and 1·3 per 1000 in the two preceding weeks. The deaths of infants (under two years of age) attributed to diarrhœa and enteritis, which had been 149, 214, and 264 in the three preceding weeks, further rose to 391, and included 73 in London, 25 in Birkenhead, 24 in Liverpool, 24 in Manchester, 19 in Sheffield, 19 in Birmingham, 14 in Cardiff, and 13 in St. Helens. The deaths referred to measles, which had been 68, 77, and 77 in the three preceding weeks, declined to 67 in the week under review; 13 deaths occurred in London, 13 in Stoke-on-Trent, 5 in Liverpool, 4 in West Bromwich, and 4 in Manchester. The fatal cases of whooping-cough, which had been 62, 50, and 47 in the three preceding weeks, further fell to 45; of this number 9 were registered in London, 5 in Manchester, 3 in Liverpool, and 3 in Oldham. The deaths attributed to diphtheria, which had been 35, 31, and 36 in the three preceding weeks, declined to 25, and included 8 in London, 2 in Stoke-on-Trent, and 2 in Birmingham. The deaths referred to scarlet fever, which had been 20, 15, and 18 in the three preceding weeks, slightly rose to 21; 5 deaths were recorded in Birmingham, 4 in London, 2 in Bury, and 2 in Manchester. The fatal cases of enteric fever, which had declined from 14 to 6 in the four preceding weeks, rose to 13 and included 2 in London and 2 in South Shields.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased from 1418 to 2125 in the preceding eight weeks, had further risen to 2131 on Saturday, August 9th; 244 new cases were admitted during the week, against 357, 346, and 258 in the three preceding weeks. These hospitals also contained on August 9th 887 cases of diphtheria, 236 of measles, 233 of whooping-cough, and 54 of enteric fever, but not one of small-pox. The 987 deaths in London were 99 in excess of the number in the previous week, and corresponded to an annual death-rate of 11·4 per 1000. The deaths referred to diseases of the respiratory system, which had been 115, 107, and 108 in the three preceding weeks, slightly rose to 115, and were 16 in excess of the number recorded in the corresponding week of last year.

Of the 4125 deaths from all causes in the 96 towns, 201 resulted from various forms of violence and 394 were the subject of coroners' inquests. The causes of 43, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 64 other smaller towns. Of the 43 uncertified causes of death, 8 were recorded in Birmingham, 3 in London, 3 in Gloucester, 3 in Liverpool, and 2 each in Portsmouth, in St. Helens, in Southport, in Darlington, and in Carlisle.

In the 96 English and Welsh towns, with populations exceeding 50,000 at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 9266 births and 4569 deaths were registered during the week ended Saturday, August 16th. The annual rate of mortality in these towns, which had been 11·0, 11·6, and 12·0 per 1000 in the three preceding weeks, further rose to 13·3 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 11·7, against 11·0 per 1000 in London during the same period. Among the several towns the death-rates last week ranged from 2·4 in Ilford, 2·9 in Eastbourne, 4·4 in Bournemouth, 5·4 in Ealing, and 5·5 in Cambridge, to 18·8 in Bootle, 18·9 in St. Helens, 21·2 in Walsall, 21·8 in Wigan, and 21·9 in Birkenhead.

The 4569 deaths from all causes in the 96 towns were 444 in excess of the number in the previous week, and included 751 which were referred to the principal epidemic diseases, against numbers rising from 281 to 562 in the six preceding weeks. Of these 751 deaths, 581 resulted from infantile diarrhœal diseases, 56 from measles, 49 from whooping-cough, 34 from diphtheria, 22 from scarlet fever, 9 from enteric fever, and not one from small-pox. The mean annual death-rates from these diseases last week was equal to 2·2, against 1·3 and 1·6 per 1000 in the two preceding weeks. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 214, 264, and 391 in the three preceding weeks, further rose to 581 last week, and included 96 in London, 49 in Liverpool, 41 in Manchester, 35 in Birmingham, 29 in Birkenhead, and 27 in Bradford. The deaths referred to measles, which had been 77, 77, and 67 in the three preceding weeks, fell to 56 last week; 11 deaths occurred in London, 9 in Stoke-on-Trent, 6 in Liverpool, and 5 in Manchester. The fatal cases of whooping-cough, which had been 50, 47, and 45 in the three preceding weeks, rose again to 49 last week; of this number 7 were registered in London, 4 in Liverpool, and 4 in Bolton. The deaths referred to diphtheria, which had been 31, 36, and 25 in the three preceding weeks, rose again to 34 last week, and included 4 each in London, Birmingham, Liverpool, and Leeds, and 3 in Cardiff. The deaths from scarlet fever, which had been 15, 18, and 21 in the three preceding weeks, were 22 last week; 8 deaths occurred in London and 4 in Birmingham. The 9 deaths from enteric fever were about equal to the average in recent weeks, and included 3 in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased from 1418 to 2131 in the preceding nine weeks, fell slightly to 2124 on Saturday last; 230 new cases were admitted during the week, against 346, 258, and 244 in the three preceding weeks. These hospitals also contained on Saturday last 855 cases of diphtheria, 202 of measles, 230 of whooping-cough, and 47 of enteric fever, and not one of small-pox. The 1047 deaths in London were 60 more than the number in the preceding week, and corresponded to an annual death-rate of 12·1 per 1000. The deaths referred to diseases of the respiratory system, which had been 107, 108, and 115 in the three preceding weeks, further rose to 130 last week, and were 11 above the number recorded in the corresponding week of last year.

Of the 4569 deaths from all causes in the 96 towns, 175 resulted from various forms of violence and 374 were the subject of coroners' inquests. The causes of 33, or 0 7 per cent., were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London, West Ham, Bristol, Leicester, Nottingham, Manchester, Salford, Bradford, Leeds, Hull, and Newcastle-on-Tyne, and in 67 other smaller towns. Of the 33 uncertified causes of death, 7 were recorded in Birmingham, 5 in Liverpool, 3 each in Stoke-on-Trent and in South Shields, and 2 in Sheffield.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns 1081 births and 609 deaths were registered during the week ended Saturday, August 9th. The annual rate of mortality in these towns, which had been 13·2, 13·1, and 14·8 per 1000 in the three preceding weeks, declined to 14·1 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 13·8, against 11·4 per 1000 in the 96 large English towns. Among the several Scotch towns the death-rates in the week under review ranged from 6·0 in Kilmarnock, 9·1 in Leith, and 10·4 in Perth, to 15·6 in Kirkcaldy, 16·8 in Ayr, and 22·6 in Dundee.

The 609 deaths from all causes were 34 below the number in the previous week, and included 79 which were referred to the principal epidemic diseases, against 64 and 61 in the two preceding weeks. Of these 79 deaths, 39 resulted from infantile diarrhœal diseases, 20 from measles, 10 from whooping-cough, 6 from diphtheria, 2 from enteric fever, and 2 from scarlet fever, but not one from small-pox. These 79 deaths from the principal epidemic diseases corresponded to an annual death-rate of 1·8, against 1·6 per 1000 in the 96 large English towns. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 13, 24, and 21 in the three preceding weeks, rose to 39 in the week under review, and included 25 in Glasgow, 4 in Dundee, 3 in Motherwell, and 2 in Paisley and in Leith. The deaths referred to measles, which had been 28, 18, and 16 in the three preceding weeks, rose to 20, and comprised 16 in Glasgow, 2 in Paisley, and 2 in Greenock. The fatal cases of whooping-cough, which had been 11, 15, and 14 in the three preceding weeks, declined to 10, and included 5 in Glasgow. The 6 deaths attributed to diphtheria, of which 2 occurred in Glasgow and 2 in Aberdeen, were slightly in excess of the average in the earlier weeks of the quarter. The 2 fatal cases of enteric fever were recorded in Glasgow, and those of scarlet fever in Edinburgh.

The deaths referred to diseases of the respiratory system, which had been 71, 63, and 83 in the three preceding weeks, were 79 in the week under notice; 27 deaths resulted from different forms of violence, against 24 and 21 in the two preceding weeks.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,259,600 persons at the middle of this year, 1103 births and 567 deaths were registered during the week ended Saturday, August 16th. The annual rate of mortality in these towns, which had been 13·1, 14·8, and 14·1 in the three preceding weeks, further fell to 13·1 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 13·7, against 11·7 per 1000 in the 96 large English towns. Among the several Scotch towns the death-rates last week ranged from 6·0 in Kilmarnock, 8·4 in Leith, 8·5 in Clydebank, and 8·8 in Falkirk, to 14·4 in Glasgow, 14·9 in Perth, 17·6 in Hamilton, and 19 2 in Coatbridge.

The 567 deaths from all causes were 42 below the number in the previous week, and included 80 which were referred to the principal epidemic diseases, against 61 and 79 in the two preceding weeks. Of these 80 deaths, 45 resulted from infantile diarrhœal diseases, 13 from measles, 11 from whooping-cough, 10 from diphtheria, and 1 from enteric fever, but not one from scarlet fever or from small-pox. These 80 deaths from the principal epidemic diseases corresponded to an annual death-rate of 1·8, against 2 2 per 1000 in the 96 large English towns. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 24, 21, and 39 in the three preceding weeks, further rose to 45 last week, and included 28 in Glasgow, 6 in Dundee, and 3 in Hamilton. The deaths referred to measles, which had been 18, 16, and 20 in the three preceding weeks, fell to 13 last week, and included 9 in Glasgow and 2 in Edinburgh. The fatal cases of whooping-cough, which had been 15, 14, and 10 in the three preceding weeks, rose slightly to 11 last week, and included 7 in Glasgow. The deaths from diphtheria, which had been 2, 5, and 6 in the three preceding weeks, further rose to 10 last week, of which 5 occurred in Glasgow and 2 in Aberdeen. The death from enteric fever occurred in Clydebank.

The deaths referred to diseases of the respiratory system, which had been 63, 83, and 79 in the three preceding weeks, fell to 44 last week; 28 deaths resulted from different forms of violence, against 28 and 27 in the two preceeding weeks

HEALTH OF IRISH TOWNS.

In the 27 town-districts of Ireland 551 births and 357 deaths were registered during the week ended Saturday, August 9th. The annual rate of mortality in these towns, which had been 15·2, 16·4, and 16·6 per 1000 in the three preceding weeks, declined to 15·5 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these Irish towns averaged 15·9 per 1000; in the 96 large English towns the corresponding rate did not exceed 11·4, while in the 16 Scotch towns it was equal to 13·8 per 1000. The annual death-rate in the week under review was equal to 17·9 in Dublin (against 11·4 in London and 14·7 in Glasgow), 15·1 in Belfast, 15·0 in Cork, 12·7 in Londonderry, 9·5 in Limerick, and 30·4 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 11·8 per 1000.

The 357 deaths from all causes were 24 fewer than the number in the previous week, and included 58 which were referred to the principal epidemic diseases, against 27 and 42 in the two preceding weeks. Of these 58 deaths, 47 resulted from infantile diarrhœal diseases, 7 from measles, 2 from diphtheria, 1 from scarlet fever, and 1 from whooping-cough, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 2·5 per 1000; in the 96 large English towns the corresponding rate did not exceed 1·6, while in the 16 Scotch towns it was equal to 1·8 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 16, 15, and 28 in the three preceding weeks, further rose to 47, and included 25 in Belfast, 17 in Dublin, and 3 in Cork. The deaths referred to measles, which had been 4, 5, and 8 in the three preceding weeks, were 7 in the week under notice, and comprised 6 in Waterford and 1 in Dublin. The 2 fatal cases of diphtheria occurred in Dublin, that of scarlet fever in Belfast, and that of whooping-cough in Galway.

The deaths referred to diseases of the respiratory system, which had been 56, 41, and 42 in the three preceding weeks, were 43 in the week under notice. Of the 357 deaths from all causes, 112, or 31 per cent., occurred in public institutions, and 9 resulted from different forms of violence. The causes of 6, or 1·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death did not exceed 1·0 per cent.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,199,180 persons at the middle of this year, 616 births and 442 deaths were registered during the week ended Saturday, August 16th. The annual rate of mortality in these towns, which had been 16·4, 16·6, and 15·5 in the three preceding weeks, rose again to 19·2 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Irish towns averaged 16·4 per 1000; in the 96 large English towns the corresponding rate did not exceed 11·9, while in the 16 Scotch towns it was equal to 13·7 per 1000. The annual death-rate last week was equal to 18·6 in Dublin (against 12·1 in London and 14·4 in Glasgow), 20·9 in Belfast, 25·2 in Cork, 17·8 in Londonderry, 16·2 in Limerick, and 20·9 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 15·7 per 1000.

The 442 deaths from all causes were 85 above the number in the preceding week, and included 84 which were referred to the principal epidemic diseases, against 42 and 58 in the two preceding weeks. Of these 84 deaths, 63 resulted from infantile diarrhœal diseases, 7 from measles, 5 from whooping-cough, 4 from enteric fever, 4 from scarlet fever, and 1 from diphtheria, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 4·0 per 1000; in the 96 large English towns the corresponding rate did not exceed 2·2, while in the 16 Scotch towns it was equal to 1·8 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 15, 28, and 47 in the three precedings weeks, further rose to 63 last week and included 27 in Dublin, 25 in Belfast, and 3 in Portadown. The fatal cases of measles, which had been 5, 8, and 7 in the three preceding weeks, were again 7 last week; 3 deaths occurred in Londonderry. The deaths from whooping-cough, which had been 4, 2, and 1 in the three preceding weeks, rose to 5 last week, and included 3 in Dublin. Three of the deaths from enteric fever and 3 of those from scarlet fever were registered in Belfast.

The deaths referred to diseases of the respiratory system, which had been 41, 42, and 43 in the three preceding weeks, were 51 in the week under notice. Of the 442 deaths from all causes, 128, or 29 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 11, or 2·5 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death did not exceed 0·7 per cent.

VITAL STATISTICS OF LONDON DURING JULY, 1913.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal *to an annual rate of* 6·6 *per 1000 of the population*, estimated at 4,518,191 persons in the middle of the year; in the three preceding months the rates were 4·6, 4·8, and 5·4 per 1000 respectively. The lowest rates last month were recorded in Kensington, the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, and Holborn; and the highest rates in Hammersmith, Poplar, Southwark, Battersea, Deptford, and Woolwich. The prevalence of scarlet fever showed a considerable increase over that recorded in the preceding month; this disease was proportionally most prevalent in Hammersmith, Fulham, Poplar, Bermondsey, Battersea, and Deptford. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 1353, 1414, and 1579 at the end of the three preceding months, had further risen to 2093 at the end of last month; the weekly admissions averaged 312 last month, against 183, 184, and 232 in the three preceding months. Diphtheria was slightly more prevalent than it had been in the previous month; the greatest proportional prevalence of this disease was recorded in St. Pancras, the City of London, Shoreditch, Poplar, Southwark, Greenwich, and Woolwich. The Metropolitan Asylums Hospitals contained 886 diphtheria patients at the end of last month, against 792, 803, and 811 at the end of the three preceding months; the weekly admissions averaged 128, against 91, 105, and 116 in the three preceding months. The prevalence of enteric fever last month was greater than it had been in any of the five preceding months; among the several metropolitan boroughs this disease was proportionally most prevalent in Stoke Newington, Holborn, Stepney, Southwark, Deptford, and Woolwich. There were 50 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 34, 41, and 35 at the end of the three preceding months; the weekly admissions averaged 10, against 4, 7, and 5 in the three preceding months. Erysipelas was proportionally most prevalent in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Deptford. The 37 cases of puerperal fever notified during the month included 5 in Islington, 5 in Wandsworth, 4 in Kensington, 4 in Fulham, and 3 in Southwark. The 7 cases of cerebro-spinal meningitis belonged respectively to Islington, Hackney, Finsbury, Poplar, Bermondsey, Lambeth, and Battersea; and the 14 cases of poliomyelitis included 2 each in Hackney, Shoreditch, and Lewisham.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the five weeks ending August 2nd the deaths of 4597 London residents were registered, *equal to an annual rate of* 10·6 per 1000; in the three preceding months the rates had been 15·3, 12·9, and 11·1 respectively. The death-rates last month ranged from 7·8 in Lewisham, 8·1 in Fulham and in Wandsworth, 8·9 in St. Marylebone, 9·1 in Kensington and in Woolwich, and 9·2 in Greenwich, to 12·7 in Holborn and in Deptford, 13·0 in St. Pancras, 13·3 in the City of London, 13·5 in Finsbury, 13·9 in Southwark, and 14·0 in Bermondsey. The 4597 deaths from all causes included 380 which were referred to the principal infectious diseases; of these, 73 resulted from measles, 18 from scarlet fever, 28 from diphtheria, 57 from whooping-cough, 6 from enteric fever, and 198 from diarrhœa and enteritis among children under two years of age. No death from any of these

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1913.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,518,191	—	1680	676	—	81	—	37	364	7	14	2859	6·6	—	73	18	28	57	6	198	380	0·9	4597	10·6
West Districts.																								
Paddington	142,210	—	42	16	—	3	—	—	12	—	1	74	5·4	—	10	—	—	1	—	4	15	1·1	138	10·0
Kensington	171,284	—	47	10	—	4	—	4	13	—	—	78	4·7	—	1	—	—	3	1	6	11	0·7	150	9·1
Hammersmith	123,745	—	81	14	—	3	—	—	6	—	—	104	8·8	—	3	1	—	1	—	1	6	0·5	131	10·9
Fulham	157,117	—	79	20	—	2	—	4	12	—	1	118	7·8	—	2	—	—	5	—	3	10	0·7	118	8·1
Chelsea	64,598	—	26	8	—	1	—	—	4	—	—	39	6·3	—	—	—	—	—	1	—	1	0·2	62	9·5
City of Westminster	154,810	—	34	18	—	2	—	1	5	—	—	60	4·0	—	—	2	2	—	1	3	8	0·5	166	11·8
North Districts.																								
St. Marylebone	114,532	—	38	8	—	1	—	1	5	—	—	53	4·8	—	—	—	—	—	—	3	3	0·3	96	8·9
Hampstead	86,346	—	20	6	—	—	—	—	1	—	—	27	3·3	—	—	2	—	1	—	3	6	0·7	73	9·3
St. Pancras	214,330	—	52	44	—	3	—	2	25	—	1	127	6·2	—	1	—	1	3	—	17	22	1·1	267	13·0
Islington	325,585	—	111	40	—	3	—	5	12	1	1	173	5·5	—	5	2	1	2	—	10	20	0·6	349	10·9
Stoke Newington	50,518	—	2	9	—	2	—	1	4	—	—	18	3·7	—	—	—	—	—	—	—	—	—	52	10·2
Hackney	223,353	—	59	27	—	4	—	1	16	1	2	110	5·1	—	1	1	2	2	—	4	10	0·5	203	6
Central Districts.																								
Holborn	46,949	—	4	3	—	2	—	—	2	—	1	12	2·7	—	1	—	1	—	—	2	4	0·9	57	12·7
Finsbury	84,679	—	35	12	—	2	—	—	19	1	—	69	8·5	—	—	—	1	1	—	6	8	1·0	111	13·5
City of London	17,916	—	3	4	—	1	—	—	1	—	1	10	5·8	—	—	—	—	—	—	—	—	—	22	13·3
East Districts.																								
Shoreditch	109,654	—	35	27	—	3	—	2	19	—	2	88	8·4	—	—	—	1	5	—	9	15	1·4	116	11·4
Bethnal Green	127,824	—	45	22	—	3	—	1	22	—	—	93	7·6	—	3	—	—	—	—	12	15	1·2	138	11·7
Stepney	275,300	—	87	39	—	7	—	1	34	—	—	168	6·4	—	5	—	3	5	1	24	38	1·4	297	11·8
Poplar	160,913	—	79	31	—	1	—	—	21	1	1	134	8·7	—	3	—	3	1	—	12	19	1·2	187	12·0
South Districts.																								
Southwark	188,487	—	73	59	—	5	—	3	25	—	—	165	9·1	—	6	—	3	4	1	14	28	1·5	249	13·9
Bermondsey	124,739	—	69	10	—	1	—	—	12	1	—	93	7·8	—	5	—	—	3	—	10	18	1·5	168	14·0
Lambeth	297,139	—	112	24	—	5	—	2	14	1	—	158	5·5	—	8	2	2	6	—	19	37	1·3	337	11·6
Battersea	167,464	—	128	26	—	3	—	—	7	1	—	165	10·3	—	—	2	2	3	—	5	12	0·7	162	10·2
Wandsworth	330,395	—	112	25	—	6	—	5	16	—	1	165	5·2	—	4	2	—	1	—	9	16	0·5	257	8·1
Camberwell	261,805	—	85	31	—	3	—	—	15	—	—	134	5·3	—	1	—	—	2	1	9	13	0·5	236	9·3
Deptford	109,280	—	89	18	—	3	—	2	18	—	—	130	12·4	—	4	—	2	4	—	7	17	1·6	135	12·7
Greenwich	96,015	—	23	26	—	1	—	2	11	—	—	63	6·8	—	6	—	—	1	—	2	9	1 0	87	9·2
Lewisham	168,822	—	57	32	—	4	—	—	6	—	2	101	6·2	—	3	2	2	2	—	1	10	0·6	128	7·8
Woolwich	122,382	—	53	67	—	3	—	—	7	—	—	130	11·1	—	1	2	2	1	—	3	9	0·8	105	9 1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

diseases was recorded last month in Stoke Newington or the City of London; among the other boroughs they caused the lowest death rates in Hammersmith Chelsea, the City of Westminster, St Marylebone, Hackney Wandsworth, and Camberwell, and the highest rates in Shoreditch, Stepney, Southwark, Bermondsey, Lambeth, and Deptford The 73 deaths from measles were 58 below the corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal in Paddington, Hammersmith, Southwark, Bermondsey, Lambeth, Deptford, and Greenwich The 18 fatal cases of scarlet fever showed a decline of 8 from the corrected average number, and included 2 each in the City of Westminster, Hampstead, Islington, Lambeth Battersea, Wandsworth, Lewisham, and Woolwich The 28 deaths from diphtheria were 12 fewer than the corrected average, and included 3 each in Stepney, Poplar, and Southwark The 57 fatal cases of whooping cough were 20 below the corrected average number, this disease was proportionally most fatal in Fulham, Shoreditch, Bermondsey, and Deptford The 6 deaths from enteric fever were 4 below the corrected average number, and belonged respectively to Kensington Chelsea the City of Westminster, Stepney, Southwark, and Camberwell The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in St Pancras Shoreditch, Bethnal Green, Stepney, Poplar Southwark, and Bermondsey In conclusion it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 35 9 per cent below the average

THE SERVICES

Royal Navy Medical Service

THE following appointments have been notified —Fleet Surgeons W E Mathew to the *Cochrane*, M L M Vaudin to the *Triumph* for medical charge on voyage out, and for Wei hai wei sick quarters, R S Bernard to the *Triumph*, on relieving the *Tamar*, and T W Philip to the *Queen Mary* on commissioning Staff Surgeons W C B Smith to the *Pembroke*, additional, and to the *London* H B Hill to the *Wildfire*, additional for Royal Naval Barracks and Dockyard, Sheerness, W G Edwards to His Majesty s Dockyard, Portsmouth and R F MacMahon to Plymouth Hospital all temporary, E A G Wilkinson to the *Victory*, additional and to the *Neptune*, F J Gowans to the *Queen Mary*, on commissioning, E R Townsend to the *Forth*, F J L P McKenna to the *Donegal*, L C Hunt to the *Triumph*, additional, for Hong Kong Yard, on relieving the *Tamar*, A I Sheldon to the *Philomel*, and T G Blunt to the *Rosario* Surgeons G A Finegan to the *Blenheim*, G D G Fergusson to the *Clio*, H St C Colson to the *Suffolk*, F H Holl to the *Torch* additional, and on recommissioning, A Fairley to the *Merlin* on recommissioning, W E Lloyd to the *Triumph*, on relieving the *Tamar*, A E Malone to the *Halcyon* additional for the *Spanker*, S Bradbury to Plymouth Hospital, H E Perkins to Chatham Hospital and L C E Murphy to Royal Marine Division, temporary

Army Medical Service

Colonel Edmund J E Risk retires on retired pay (dated August 20th, 1913)

Royal Army Medical Corps

The undermentioned to retire on retired pay —Lieutenant Colonel Walter C Beevor C M G (dated August 20th 1913) and Captain John C

Lieutenant Noel T

restored to the establishment (dated July 26th 1913)

The undermentioned Lieutenants are confirmed in their rank —Walter W Pratt Cuthbert J H Little, Edward P A Smith, James B A Wigmore Charles C Jones Arthur A M Davies, Leslie Dunbar, Henry Beddingfield, Frederick C Davidson, John F O Connell, Stanley D Large, Cyril Helm William O W Ball John Crocket, Humfrey N Scaly, Albert Jackson Edward O Beddows, Conyngham Y Thornton, John Rowe William P Croker, Arthur H Bridges, Aubrey G Brown and Robert Hemphill

The undermentioned to be Lieutenants (on probation) (dated July 25th 1913) —Ernest Wentworth Wade Bernard Woodhouse, William Kenneth Morrison, Edgar Percival, and Henry Charles Deans Rankin

The undermentioned Lieutenants are seconded under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1909 (dated July 25th, 1913) —Ernest W Wade, Bernard Woodhouse, William K Morrison, and Edgar Percival

Lieutenant Colonel J J Gerrard, senior medical officer, West Africa, has arrived home on leave of absence from the Sierra Leone Protectorate Lieutenant Colonel T Du B Whaite, senior medical officer at the Royal Arsenal, Woolwich, has been placed under orders for a tour of service in India during the coming trooping season, and on arrival will be appointed for duty with the Northern Army Lieutenant Colonel O L Robinson has been granted five months' leave of absence Lieutenant Colonel H D Rowan, at present in charge of the Military Hospital at Tidworth, Salisbury Plain, has been ordered to join the Dublin District on Oct 1st next to take over charge of the King George V Military Hospital at Arbor Hill, in succession to Lieutenant-Colonel W C Beevor, C M G Lieutenant Colonel T B Winter has rejoined at Colchester Lieutenant Colonel G D Hunter, D S O, Commandant at the Royal Army Medical Corps School of Instruction, Aldershot has been placed under orders for a tour of service abroad Lieutenant Colonel H J Pocock has been transferred from the Military Hospital at Campbellpore Cantonment to Murree Cantonment and appointed Senior Medical Officer

Major J A O MacCarthy has been transferred from the Military Hospital at Hounslow to the Woolwich District and appointed to the Royal Herbert Military Hospital Major H K Palmer has taken up duty in the Aden Brigade on transfer from the Fifth (Mhow) Division Major L Wood has left Hyderabad, Sind, for duty at Quetta Major A W N Bowen has arrived home on leave of absence from the Military Hospital at Kirkee Cantonment Major G B Crisp, at present employed on recruiting duty in the London District, has been placed under orders for a tour of service in the South China Command during the coming trooping season Major W A Woodside has been transferred from the Military Hospital at Agra Cantonment to Chakrata Major T E Fielding has taken up duty in the Devonport District on the termination of leave of absence Major J L Robinson has been transferred from the Military Hospital at Peshawar Cantonment to Cherat Major C E Fleming has joined the Military Hospital at Pretoria on transfer from Potchefstroom Major M W Falkner has arrived home on leave of absence from Bermuda Major H W H O Reilly, in menical charge of the Detention Barracks and effective troops at Colchester, has been placed under orders for a tour of duty with the Southern Army in India

Captain J H Campbell has joined the Scottish Command for a tour of duty Captain R G Meredith has been placed under orders for a tour of service in Ceylon Captain G G Tabuteau has been selected for appointment as Specialist in Operative Surgery to the Cork District in succession to Captain W F H Vaughan, whose tenure of the appointment has expired Captain D Ahern has arrived home on leave of absence from the Military Hospital at Cairo Captain G B Edwards has been appointed to the Northern Command Captain A E S Irvine has taken up duty in the Belfast District on the expiration of leave of absence Captain H Stewart has arrived home for duty from Ferozepore Captain A Dawson has joined the Curragh Camp Captain J G Bell has been placed under orders to proceed to the Straits Settlements for a tour of duty, embarking on Sept 3rd Captain D F McKenzie has been granted an extension of his Indian tour of service for one year Captain D Coutts has been transferred from the Military Hospital at Bareilly Cantonment to Ranikhet Captain R G Anderson has arrived home on leave of absence from the Egyptian Army Captain R A Bryden has been appointed to the Western Command Captain P Power has been appointed to the Southern Army in India embarking on Sept 24th Captain J J O Keefe has been transferred from Meerut Cantonment to Naini Tal Captain V T Carruthers has been appointed to the Eastern Command for a tour of duty Captain L Cotterill Instructor in Musketry at the Royal Army Medical Corps Depot, has been placed under orders for a tour of duty with the Northern Army in India Captain E J Kavanagh has been appointed to the Military Hospital at Chatham on return home from India, tour expired. Captain C. A. T. Conyngham has been transferred from the Fourth (Quetta) Division to the Fifth (Mhow) Division of the Southern Army in India. Captain M. P. Leahy has joined the Dublin District for duty on return from Kirkee. Captain C. W. O'Brien has been appointed to the London District. Captain R. H. MacNichol, Specialist in Dermatology and Venereal Diseases at the Royal Herbert Hospital, Woolwich, has been detailed to proceed to Malta for a tour of service. Captain R. D. O'Connor has been transferred from the Military Hospital at Multan Cantonment to Murree. Captain A. C. A. Amy has been granted seven and a half months' leave of absence home from India. Captain A. C. Osborn has been transferred from the Military Hospital at Hilsea to the Salisbury Plain District, and appointed to hold medical charge of Rolleston Camp.

Lieutenant S. D. Large has been appointed to the Aldershot Command for a tour of duty. Lieutenant R. Davidson has been placed under orders to proceed to India for duty with the Northern Army. Lieutenant F. A. Robinson has joined the Military Hospital at Mhow. Lieutenant S. H. Smith has been appointed to the Eastern Command. Lieutenant W. A. Frost on arrival in India has been appointed to the Military Hospital at Poona to undergo a course of sanitation. Lieutenant E. T. Gaunt has arrived home on leave of absence from the Military Hospital at Malta. Lieutenant F. C. Davidson has been appointed to the Scottish Command. Lieutenant W. B. Laird has been appointed to the Southern Army in India for a tour of duty. Lieutenant P. Hayes has been transferred from the Military Hospital at Secunderabad Cantonment to Wellington for duty at the Military Sanatorium. Lieutenant E. C. Beddows has been ordered to join the Irish Command. Lieutenant C. J. Little has been appointed to the Northern Command. Lieutenant W. F. Christie has been placed under orders to embark for a tour of duty in the Straits Settlements on Sept. 3rd. Lieutenant C. V. Thornton has been ordered to join the Irish Command for duty, and on arrival will be posted to the Dublin District. Lieutenant W. T. Graham has been transferred from the Military Hospital at Lucknow Cantonment to Multan for duty at the Station Hospital. Lieutenant C. D. K. Seaver has taken up duty at Dalhousie on transfer from the Military Hospital at Rawal Pindi Cantonment. Lieutenant F. S Tamplin has left the Royal Victoria Hospital at Netley for a tour of duty at Gibraltar.

INDIAN MEDICAL SERVICE.

The King has approved of the promotion of the following officers :—

Captains to be Majors (dated Dec. 27th, 1912): Fred William Sumner; (dated June 27th, 1913) William Duncan Ritchie, John Kenneth Sprot Fleming, Evelyn Charles Hepper, George Charles Lovell Kerans, Christopher Birdwood McConaghy, John Beresford Christian, Andrew Murphy, Frederic Troughton Thompson, Laurence Percival Brassey, Colin Forbes Marr, and Patrick Laurence O'Neill.

Lieutenant to be Captain (dated Jan. 29th, 1913): Cecil George Howlett.

The King has also approved of the retirement of the following officers :—

Lieutenant-Colonel Mackintosh Alexander Thomas Collie (dated June 30th, 1913), Lieutenant-Colonel Eric Harding Sharman (dated August 1st, 1913), and Captain Richard Francis Chetwynd Talbot (dated July 24th, 1913).

Lieutenant-Colonel C. H. James, C.I.E., has taken up duty as Civil Surgeon at Simla, West. Lieutenant-Colonel J. Crimmin, V.C., Port Medical Officer of Health, Bombay, has arrived home from India on leave of absence. The services of Lieutenant-Colonel C. Duer, late civil surgeon at Simla, West, have been placed at the disposal of the Government of Burma. Lieutenant-Colonel J. K. Close, civil surgeon at Allahabad, has been granted privilege leave of absence for six weeks. The services of Lieutenant-Colonel H. B. Melville, civil surgeon at Benares, have been placed at the disposal of the Home Department of the Government of India for employment as Civil Surgeon at Delhi.

Major A. M. Fleming has been appointed to officiate as Civil Surgeon of the First Class in succession to Lieutenant-Colonel H. E. Banatvala, appointed to officiate as Inspector-General of Civil Hospitals in the Central Provinces. Major A. Leventon, civil surgeon at Dibrugarh, Assam, has been granted 18 months' combined leave of absence home from India. Major A. Fenton has been appointed to officiate as Superintendent of the Lunatic Asylum at Rangoon, in succession to Major W. H. Cox, D.S.O., granted leave of absence home from India for one year on medical certificate. Major W. M. Anderson has been selected for appointment as Agency Surgeon at Haraoti. Major R. H Heard has taken up duty at the Government Medical College, Lahore, as Professor of Midwifery, on return from leave of absence.. Major G. Y. C. Hunter has been selected for appointment as Superintendent of the Buxar Central Jail. Major Jay Gould has taken up duty as Assistant Director-General, Indian Medical Services (Stores). Major A. W. Tuke has arrived home on leave of absence from India. Major J. W. Lethbridge, Second Class Agency Surgeon, Madras Presidency, has been granted two years' furlough. Major E. O. Thurston has been appointed to officiate as Professor of Surgery at the Medical College, Calcutta, and Surgeon to the College Hospital during the absence on leave of Lieutenant-Colonel R. Bird, M.V.O., C.I.E.

Captain J. V. MacDonald has had his services placed at the disposal of the Chief Commissioner of Assam for appointment as Medical Officer to the Lakhimpur Military Police in the North-Eastern Frontier. The services of Captain W. R. J. Scroggie, at present officiating as civil surgeon at Coorg, have been replaced at the disposal of the Government of Madras Presidency. Captain R. I. Binning has been selected for appointment as Specialist in Midwifery and Diseases of Women and Children. Captain F. F. Elwes, C.I.E., has been granted leave of absence for one month. Captain E. W. C. Bradfield has been appointed to officiate as Civil Surgeon of the Fourth Madras District. The services of Captain O. A. R. Berkeley Hill have been replaced at the disposal of the Government of India. Captain J. Lunham has been appointed to officiate as Civil Surgeon at Karwar during the absence on leave of Major W. D. Keys. Captain W. P. G. Williams, officiating superintendent at the Central Prison, Bareilly, has been granted privilege leave combined with leave home from India on medical certificate for ten months. Captain R. A. Lloyd has been appointed to the Bilaspur District. Privilege leave for six weeks has been granted to Captain W. J. Fraser, civil surgeon at Chhindwara.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Duncan Macfadyen to be Captain (dated August 26th, 1913).

Lieutenant George F. Randall, from the Seconded List, is restored to the establishment (dated June 21st, 1913).

The undermentioned Lieutenants are confirmed in their rank :—William C. Davidson, James Gossip, Ivan L. Waddell, James Rafter, and Francis O. L. Moore.

TERRITORIAL FORCE.

Royal Army Medical Corps.

The appointment of Lieutenant-Colonel Thomas Robinson Glynn, M D., 1st Western General Hospital, Royal Army Medical Corps, to, and the retirement of Honorary Colonel Richard Caton from, the Honorary Colonelcy of the Royal Army Medical Corps, Territorial Force, of the West Lancashire Territorial Division. is dated August 13th, 1913.

1st South Midland Mounted Brigade Field Ambulance, Royal Army Medical Corps : Alexander Leggat to be Lieutenant (dated July 19th, 1913).

3rd East Lancashire Field Ambulance, Royal Army Medical Corps: John Knowles Lund to be Lieutenant (dated July 2nd, 1913)

2nd Northumbrian Field Ambulance, Royal Army Medical Corps : Transport Officer and Honorary Lieutenant Alfred Johnson resigns his commission (dated August 20th, 1913)

2nd Welsh Field Ambulance, Royal Army Medical Corps: Major Edward T. Collins to be Lieutenant-Colonel (dated July 10th, 1913). John Wallace (late Lieutenant, 2nd Glamorganshire Royal Garrison Artillery (Volunteers)), to be Lieutenant (dated July 10th, 1913).

3rd Wessex Field Ambulance, Royal Army Medical Corps: Lieutenant Elliott B. Bird to be Captain (dated May 23rd, 1913).

1st Western General Hospital, Royal Army Medical Corps: Lieutenant-Colonel Nathan Raw, on completion of his period of service in command of a General Hospital, is retired (dated August 20th, 1913). Major Archibald B. Gemmel to be Lieutenant-Colonel (dated August 20th, 1913).

Sanitary Service: Alfred Greenwood to be Major (dated August 20th, 1913). Major Alfred Greenwood is appointed Sanitary Officer of a Territorial Division (dated August 20th, 1913).

Attached to Units other than Medical Units.—Lieutenant Richard C. Clarke to be Captain (dated May 22nd, 1913). Lieutenant James L. Wilson resigns his commission (dated August 20th, 1913).

For Attachment to Units other than Medical Units.—Duncan Davidson to be Lieutenant (dated July 10th, 1913).

DEATHS IN THE SERVICES.

Surgeon-Colonel John Richardson, I.M.S. (retired), in his seventy-seventh year, on August 13th. He served with the Bhutan expedition, 1864-66, and was present at the capture of Buxa and the Bala Pass and the storming of stockades above the Pass (medal with clasp). He was appointed an Honorary Physician to the King in 1903.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Hospital Sunday Fund at Bristol.

THE final statement of the Lord Mayor's Hospital Sunday Fund for 1913 shows that during the year £1957 was received, an increase of £63 over 1912. The number of collections made was 548, an increase of 18 compared with the previous year. The Bristol Hospital Sunday Fund was established 16 years ago, and only twice has the sum of £2000 been raised.

Bristol Tuberculosis Officer.

The Bristol health committee at a special meeting recently interviewed five candidates for the position of tuberculosis officer for the city and county of Bristol. Mr. C. J. Campbell Faill, medical officer of the Redcliffe Tuberculosis Dispensary, Bristol, was unanimously elected to the post.

Bristol Insurance Committee: Medical Referee's Salary.

Dr. B. M. H. Rogers, who was appointed to act as medical referee to the Bristol Insurance Committee for three months at £50, appealed for an increase of salary at the end of that period, stating that the number of cases referred to him had increased from 72 in the first to 100 in the last month The chairman of the committee said the Government could not undertake responsibility for this salary, which should be paid by those who derived most benefit from the work of the referee—namely, the Approved Societies. An increase from £50 to £75 for the ensuing three months was approved.

Bristol Education Committee and Errors of Refraction.

The Bristol Education Committee has offered to the Eye Hospital and Dispensary £100 and £50 respectively for the treatment of errors of refraction of the eye in school children, not more than 400 cases per annum at the former and 200 at the latter, with 5*s.* per head for each case in excess of these numbers, the patients to be seen at special hours, the Education Committee to check attendances and maintain order. This arrangement has been proposed because these two institutions have been encumbered in their work by the large increase in refraction cases coming to them as a result of school inspection.

School Clinics in Gloucestershire.

Dr. J. M. Martin, school medical officer for the county of Gloucester, has reported in favour of the establishment of school clinics at Stroud and at Kingswood. The latter is an eastern suburb of Bristol, which, however, lies within the administrative area of Gloucestershire. As present there is no school clinic in Bristol, but Dr. Martin claims that it is necessary to establish these two if children are to be treated for those defects which are discovered by school medical inspection. He says that the number of children who have secured treatment for these defects has risen in three years from 65 to 80 per cent., a higher percentage than obtains within the Bristol area. The cost of equipping two clinics would, it is said, amount to £80, and the annual maintenance would cost £180.

The Slums of Exeter.

At the last meeting of the Exeter city council exception was taken to a reported statement of the chairman of the health department of East Ham, London, that he thanked God they had no such buildings in East Ham as some of the houses in Exeter. It was remarked that East Ham was a "mushroom" compared with Exeter, that the city authorities were getting rid of many of these old houses, and that no doubt in the future many more would be demolished.

The National Insurance Act at Exeter.

At the last meeting of the Insurance Committee for Exeter it was reported that 12,315 persons had accepted the panel doctors, leaving about 4000 still unallotted. The committee decided to arrange for the allocation of these cases. The total expenditure in connexion with the administration of the Act in Exeter was £3337, of which sum medical men and chemists had received £1600.

The Tenure of District Medical Officers.

The Torrington (Devon) board of guardians recently appointed Dr Clements and Dr. J. P. Lusk medical officers for the Winkleigh and Dolton districts respectively, but although these gentlemen resided in their districts the guardians, contrary to regulations, made the appointment for one year only. The Local Government Board demurred to this, and said the appointments must be made permanently. The guardians eventually decided to comply with the directions of the Local Government Board.

August 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Tuberculosis Treatment in Scotland.

THE Local Government Board of Scotland, which has recently been in correspondence with the Treasury regarding certain questions which have arisen as to the method of distribution of the proposed maintenance grant in aid of the cost of treatment of tuberculosis, has issued a circular on the subject to clerks of local authorities. The Board points out that under Section 17 (1) of the National Insurance Act an Insurance Committee may extend sanatorium benefit to dependents of the insured. and where the county council or town council and the Treasury sanction the estimated expenditure, one-half of the excess of expenditure over the committee's funds available for sanatorium benefits will be paid out of the rates, and the other half out of the grant, Section 17 (3). In this case the grant will be paid to the Insurance Committee. For the remainder of the population - that is, the population other than the insured or dependents of the insured—the responsibility for treatment will rest with the public health local authority, who will receive payment out of the grant to the extent of one-half of their expenditure on tuberculosis incurred under schemes approved by the Board. If the county council or town council decline to sanction the estimated expenditure of the Insurance Committee, and if (for this or any other reason) the Insurance Committee's arrangements do not include treatment of all insured persons and dependents, then the responsibility for treating such persons and dependents as are not included in the committee's arrangements, as well as the remainder of the population, would fall on the public health local authority, and one-half of the cost would be met out of the grant. Among the conditions the Board propose to attach to participation in the maintenance grant are: That the scheme of the local authority for the prevention, detection, and treatment of tuberculosis shall have been approved by the Board, and shall continue to their satisfaction; that no grant shall be given towards the cost of treatment in an institution not approved by the Board; that the salaries, qualifications, duties, and respective relations to each other and to the medical officer of health, of the tuberculosis officer, the medical superintendent, and matron of the sanatorium, the medical officer and matron of the tuberculosis hospital, and the medical officer in charge of the tuberculosis dispensary, shall be approved by the Board. *As regards grants payable* to Insurance Committees under Section 17 (3) of the National Insurance Act, the final payment or adjustment will be made by the Board on the expenditure as audited under Section 60 of the Act.

Graceful Generosity.

Of the £100 recently voted by the Aberdeen Insurance Committee to Dr. Matthew Hay, medical officer of health of Aberdeen, and professor of public health and forensic medicine in the University, for service and advice rendered by him to the committee since the passing of the Insurance Act, Dr. Hay has handed £50 to Dr. G. S. Banks, the assistant medical officer of health, who has also been closely associated with the work of the committee. The other £50 has been set aside by Dr. Hay as the nucleus of a fund which will be at the disposal of an after-care committee to be applied for the benefit of patients after they leave the hospital.

The City Hospital, Aberdeen.

The public health committee of the Aberdeen town council has decided, on the recommendation of the medical officer of health, to appoint a resident medical officer to the City Hospital, Aberdeen, at a salary of £200 per annum, and a resident assistant at a salary of £100 per annum. Formerly there was only one resident medical officer, but the work of the hospital has increased enormously of recent years, *partly on account of the National Insurance Act and partly* from other causes. Last year 1994 patients passed through the hospital, and there were as many as 340 cases in the hospital in a day. The recent extension will also entail extra work.

Presentation to Dr. G. S. Trail, Strichen.

At a recent meeting of the Buchan Medical Society Dr. G. S. Trail was presented with a silver-mounted inkstand bearing the following inscription: "Presented to Dr. Trail, Strichen, by the Buchan Medical Society on his semi-jubilee as secretary of the society." Dr. Trail was nominated secretary and treasurer to the society for the current year.

August 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Question of Medical Advisers under the National Insurance Act.

THE medical advisers appointed by the Irish Insurance Commissioners held a meeting recently in Galway, at which they constituted themselves a board of advisers to the Approved Societies and County Insurance Committees in that county. The following resolution was adopted:—

> That our attention having been called to various statements made to the effect that our appointments as medical advisers to the Approved Societies will interfere with the [illegible] as dispensary doctors by taking us [illegible] for a short time, we beg to point out [illegible] never intended to confine a medical officer to his district all the year round. It is quite usual for dispensary doctors to attend meetings of the guardians and district councils, and attend the clerk's office on registration duty, sanitary and other matters, as well as to attend private patients out of their districts, and no objection has ever been made to this, although such temporary absence was often sudden and unforeseen. As medical advisers we have only to attend very occasional cases of persons claiming sick benefits where a doubt might arise. Moreover, the medical adviser has never to leave his district suddenly, as he has to arrange with the medical attendant of the insured person a day and hour for examination.

This resolution, as an attempt at defence, falls short of its object. The medical advisers say that they have only to attend "very occasional cases," but in the agreement which they have signed they undertake "to examine, free of charge, any insured person resident within the scheduled area who shall claim or be entitled to, or is in receipt of, sickness or disablement benefit." As the scheduled area must necessarily be much larger than the dispensary district, under these terms it would be essential for the medical adviser to be out of his district very frequently. In the light of the reply of the Vice-President of the Local Government Board to the deputation from the Irish Medical Association, an account of which appeared in THE LANCET of August 9th, it is clear that the Local Government Board does not consider that the medical advisers can carry out their duties as dispensary doctors under the present scheme. It was also stated at the meeting in Galway that there was no breach of etiquette in granting certificates to the patients of another doctor. The following resolution passed at a meeting of the County of Dublin Medical Organisation is an answer to this view:—

> That in the opinion of the County of Dublin Medical Organisation the tenure of the post of medical adviser in respect of insured persons, either to the Irish Insurance Commissioners or to an Approved Society, without the sanction of the profession of the district, as expressed by the Local Medical Committee, is contrary to professional ethics.

The County of Dublin Medical Organisation also instructed their representatives on the Irish Medical Committee to call upon the licensing bodies to look upon the action of the medical advisers as procuring practice by unworthy means, and to deal with them accordingly. I may mention that the name of Dr. J. J. McGrath, the recently elected superintendent of Peamount Sanatorium, was included in a recent list of medical advisers to the Insurance Commissioners. Dr. McGrath has stated publicly that he is not acting, nor does he intend to act, in that capacity. Mr. M. J. Glancy, at Athlone, has also tendered his resignation as medical adviser, and in other districts difficulties are arising owing to the inability of the medical advisers to obtain coöperation from their fellow practitioners in cases of emergency or during their temporary absence.

A meeting of the county Wexford medical practitioners has unanimously adopted a resolution condemning the action of any medical man accepting a medical advisorship under the Insurance Act, and refusing to have any dealings professionally (except in urgent cases) or socially with any medical man accepting such appointments contrary to the wishes of the profession. A further resolution described the duties allotted to medical advisers, including, if necessary, the removal of dressings, &c., of other medical men's patients without their consent, as "a gross violation of medical etiquette," and expressed the opinion that medical men so acting should be reported to the General Medical Council.

The Medical Profession in Cork and the National Insurance Act.

The following two resolutions have been passed by the practitioners in county Cork:—

> 1. That in consequence of the tyrannical action of the Irish Insurance Commissioners in appointing medical advisers for the certification of insured persons for sickness and sanatorium benefits in Dublin, Limerick, and Waterford, in opposition to the unanimous opinion and wish of the Irish medical profession, the members of the Cork medical profession will at the earliest possible date (legally) take the necessary steps to effect repudiation of the panel system as at present administered, and obtain the resignations of all members of the profession in the borough who have signed agreements with the Commissioners.
>
> 2. That we, medical practitioners of the county of Cork, adhere to our previous resolution on the question of medical certification for sickness benefit under the Insurance Act—i.e., a minimum fee of 2s. 6d per annum per insured person—and that we request members of the profession in County Cork who have joined the panel to consider their position, in view of the action of the Insurance Commissioners insisting on the appointment of medical advisers.

Overcrowding in Irish Asylums.

In the course of a discussion on the overcrowding of the Mullingar District Lunatic Asylum at a meeting of the joint committee, the resident medical superintendent said that there were 81 male and 88 female inmates too many in the asylum at present. The average increase per year had been 15 patients. It was decided to leave the matter over till the October meeting in order that Dr. Gavin might furnish a report on the feasibility of extending the short dormitories. According to a recent report of the resident medical superintendent of the Monaghan and Cavan Asylum, the number of patients in the asylum at present is 943. As accommodation was only provided for 793, there is considerable overcrowding; and if the admission rate continues at its present level, which is about 25 per month, it will be necessary for the committee to provide some temporary relief without delay. It is impossible to add beds, especially on the female side

The Medical Struggle in Londonderry.

Some time ago, in accordance with the refusals of the local medical profession to accept the terms offered to them for attendance on insured persons, an office was opened and a public medical service established, the insured population being invited to join in the medical movement. To this departure the societies responded by bringing two medical men to Londonderry. These men, however, *found* that they could not keep pace with the work, and both left the city, since when large numbers of the insured have joined the public medical service In Limerick also I learn that one of the two practitioners imported upon similar grounds has resigned his position The medical profession is to be congratulated on their victory

Typhoid Fever at Swords

Dr Bryan O'Brien, medical inspector of the Local Government Board, has issued a report on the recent outbreak of typhoid fever at Swords The first case was that of the wife of a dairyman, and there were 11 subsequent cases, in at least nine of which the patients appeared to have been in the habit of obtaining milk from the dairy It is thought that the sudden outbreak was caused by infection by means of contaminated milk The necessary steps to prevent the spread of infection have been taken The total number of cases was 12, and no fresh case has occurred for a fortnight

Medical Appointment in Sligo

Mr J T Heffernan, medical officer of the Cliffoney dispensary district, has been appointed to the Carney dispensary district at a salary of £120 a year, rising by triennial increments of £7 10*s* until the maximum of £180 a year is reached

August 19th

VIENNA

(FROM OUR OWN CORRESPONDENT)

Cholera in Hungary and Austria

THE Balkan war is to blame for two disturbing conditions with which Austro Hungary has to contend, one being a financial crisis and the other a threatened epidemic Cholera has appeared in the frontier districts between this country and Servia, as well as on the Roumanian frontier Although very careful observation has been kept on the traffic to and from the infected countries, smuggling cannot be completely suppressed, and the infection seems to have been introduced by this means The danger is likely to become even greater than at present, for since demobilisation has been ordered in the Balkan kingdoms the soldiers returning home may easily spread the disease far and wide Very stringent precautions, in addition to the usual quarantine methods, have been ordered by our Board of Health in order to exclude the disease and to suppress any outbreak The comparative coolness of the weather is very favourable to the endeavours of the board, for if the temperature was high the innumerable hosts of flies which infest the southern provinces of the empire would be a serious hindrance to hygienic efficiency

Experiments with Tobacco Smoke

At a recent meeting of the Psychiatric Society of Vienna Professor von Frankl Hoshwarth read a paper on experiments which he had conducted with a view of ascertaining the effects of ordinary tobacco as compared with those of other tobacco, from which the nicotine had been extracted in various degrees Turkish tobacco weighing 25 grammes was burnt in a small room during 20 minutes, and the changes produced in the blood pressure, the pulse rate and the velocity of psychic reaction were noted in persons who inhaled the air of the room A number of persons were quite refractory to the effects of the smoke Others showed at first euphoria, but at a later stage well marked depression and the not infrequent alteration of the sense of taste called paragensia nicotinica The blood pressure fell, while the pulse rate increased in some persons and diminished in others If the amount of 25 grammes of tobacco was smoked in the ordinary way the effects were the same but came on more rapidly in the persons affected by the smoke Tobacco which had been subjected to the process of extracting the nicotine four times showed none of these evil effects Professor von Frankl therefore recommended that persons sensitive to nicotine ought not to be required to remain in crowded rooms where much smoking was going on, but that special rooms, kept free from tobacco smoke should be available for them

Vacation Classes in the University of Vienna

In the month of September a number of classes, open to all qualified men, will be held by the assistants and *privat-docenten* of various medical departments of the University of Vienna The classes continue for four weeks (24 attendances), and the fees are between £2 2*s* and £3 3*s* The subjects comprise histology, pathological anatomy, pharmacognosy, materia medica, internal medicine (metabolism and hæmatology), pædiatrics (tracheotomy and intubation), rhinolaryngology (including the operative surgery of this region on both the cadaver and on patients), bronchoscopy, mental diseases, surgical diseases of the uropoietic system, [illegible] and [illegible] the [illegible] and [illegible] reatment of dental diseases These classes are intended mostly for medical graduates who during their summer vacation wish to fill up such gaps in their knowledge as might be caused by their being out of contact with medical teachers and specialists In short, their object is to familiarise the practitioner with recent advances in practical medicine The advantage is great, and ever since these classes have been instituted they have been well attended

Professor His and the University of Vienna

Professor His who had been invited to take over the first medical clinic as successor to Professor von Noorden, has decided to remain in Germany on account of personal and family reasons The incident is mortifying The clinics in Vienna are now really up to date, and the attitude of scientists must have a personal explanation It is said that nepotism makes itself felt amongst the Senate of the University, and that an outsider has to face a kind of opposition which is not to the taste of everybody However that may be the Senate now contemplates the appointment of a native professor, and will not come to a decision before autumn

"Flower Days" and Hospital Contributions

An easy and at [illegible] of encouraging public charity [illegible] ountry by the institution known [illegible] our hospitals asylums, out patient departments and the like, are mainly Government property and under Government management, charitable gifts to them are very rare The conditions, however, have changed lately in so far as some private charitable institutes have come into existence, and these now appeal for funds for hospitals It has been decided to institute "flower days" the net income of which should be divided evenly amongst the institutes most in need of money These "flower days" are held in each town twice a year, and the money so obtained is used also for other purposes which are none the less most praiseworthy—for the benefit of tuberculous children and incurables for the first aid ambulance, and for sending delicate children to the seaside The sending of invalids to the seaside is a comparative novelty here, the health giving properties of our warm, sandy, and sunny south coast have been used in this way only during the last 12 years

August 18th

BERLIN.

(FROM OUR OWN CORRESPONDENT)

Central Institute for Radium

A Central Institute for Radium and Mesothorium has been established in connexion with the Hamburg Institute for Researches on Cancer and Tuberculosis The institute is in possession of 300 milligrammes of radium, and is prepared to provide hospitals and clinics, and eventually medical practitioners with the compound for curative purposes The city of Düsseldorf has appropriated a sum of 250 000 marks (£12 500) for the purchase of radium The price of radium will certainly become higher on account of the increasing demand for it

Visit of American Medical Men to Berlin

A party of American medical men lately visited Germany previously to attending the International Medical Congress in London They were in Berlin from July 25th to 27th, and during their short stay they were shown over the principal hospitals and other medical institutions, such as the Army Medical School, the Empress Frederick House for Post-Graduate Study, the Institution for Infectious Diseases &c A committee formed under the presidency of Dr Moll entertained the Americans on the evening of July 26th at the garden restaurant in the Exhibition Park. Speeches were delivered by Professor Waldeyer, by Dr. Moll, and by some of the American visitors.

The Etiology of Beri-beri.

In a paper on beri-beri read at a recent meeting of the Berlin Medical Society, Dr. Moszkowski said that the hypothesis that beri-beri was due to an infection was no longer tenable, the prevalent opinion being that the disease was caused by a defect in the patient's food, especially an insufficient supply of phosphoric acid in organic compounds. He had found that peeled rice had a toxic action and that the pellicle of the grains of rice contained the antitoxin. He accordingly tried to produce beri-beri in himself by eating peeled rice in great quantities. Soon after the beginning of the experiment he suffered from constipation, headache, loss of appetite, and heartburn. Giddiness, paresthesia, nervous pains, abnormal softness of the pulse, a soporous state, slight œdema, and finally effusion into the sheaths of the tendons followed. The heart showed dilatation of both sides, a cardiac murmur at the apex, and an increase of the second sound over the pulmonary artery. The dilatation increased, and finally symptoms attributable to the vagus nerve were produced. The sensible symptoms were also characteristic for beri-beri, including formication, Lasègue's symptom, increase of the reflexes. The motor nerves were less damaged. The aspect of the disease might be compared with sensible neuritis. When rice bran was added to the food all the symptoms promptly disappeared. An investigation of the metabolism proved that the albuminous substances had undergone extensive destruction which could be caused only by toxic influence. When pigeons were fed on eggs and peeled rice they also contracted beri-beri. Professor Caspari, of the Zuntz Laboratory, who had made the experiments on metabolism, said that the destruction of the albuminous substances could not be produced by under-feeding, but only by the action of a toxin. He mentioned that dogs might fast for six weeks without showing such symptoms, but that they became ill within three weeks after they had been fed on peeled rice. Beri-beri was in close connexion with scurvy. Different kinds of meal when deprived of bran produced polyneuritis. Epidemics of beri-beri have been observed in Labrador as a result of the use of bread made with flour from which the bran had been removed.

August 16th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Health Officer of the New Capital.

A DISPATCH has recently been received from the Secretary of State sanctioning the conditions of the appointment of the health officer of the Delhi Municipality. He will be an officer of the Indian Medical Service employed in the sanitary department, and the tenure of the appointment will be for five years. It is understood that the post will be an addition to the cadre of the Indian Medical Service.

Sanitation in the Punjab.

The Punjab Sanitary Conference will be held at Simla from August 24th to 30th, under the presidency of the Financial Commissioner, the Hon. M. W. Fenton. All five Commissioners of divisions and a number of elected Deputy Commissioners will be among those attending. An interesting report on sanitation in the Punjab for 1912 shows that the death-rate for 1912 was only 26·63, in spite of a severe small-pox epidemic, against 42·7 for the previous quinquennium. In the Punjab there are only three towns, of the size of Cork or Dublin, where the death-rates were 28·54, 38·33, and 26·23 respectively. The conclusion from the comparisons to rates in Europe is that the Punjab in a favourable year is healthier than several European countries, though it has still much way to make up to reach the level of the more advanced states. It is the seasonal epidemic which disturbs the death-rate. There is a growing desire in India for sanitation.

The St. John Ambulance Brigade.

The Viceroy and Lady Hardinge were recently "at home" at Viceregal Lodge to the Simla Nursing and Ambulance Divisions of the St. John Ambulance Brigade. During the afternoon His Excellency presented the Gwalior ambulance challenge shield for Regular Troops to a deputation from the 14th Hussars, and the Dewas ambulance challenge shield to a deputation from the Kashmir, Imperial Service Infantry. In presenting the shields to the winners His Excellency expressed his deep interest in ambulance work in India and congratulated the deputations on the efficiency indicated by their success in the All-India competitions. The excellent services of the Simla nursing division in Delhi during the outrage are still fresh in the public memory.

Sanitation in Bengal.

The Government resolution on sanitation in Bengal for 1912 shows that the death-rate had increased chiefly from fever and cholera, and the Governor in Council reasonably asks how far, if at all, this increase is due to unusual variation in rainfall, which is not discussed in the Sanitary Commissioner's report. The birth-rate shows an increase which would have been greater, it is considered, if the price of foodstuffs had not been so high. The birth-rate is 35·3 per 1000, with a death-rate of 29·77, which, for the Presidency, is considered favourable in comparison to other provinces. There was a very heavy infantile death-rate, and in this respect Calcutta has been surpassed by the districts of Jalpaiguri and Dinajpore, where the rates were as high as 28·69 and 26·26 respectively. Plague was chiefly confined to the area of Calcutta and its suburbs. Cholera was prevalent in every district except Darjeeling. There was also an increase in the small-pox mortality compared with that of 1911. In spite of the extra distribution of quinine by sub-assistant surgeons and other antimalaria measures, there was an increase in the malaria returns It is stated in the report that clearance of jungle and tanks and the destruction of mosquitoes have not proved successful, and a more extended use of quinine is put forward, on present knowledge, as the only method by which it is possible to reduce the rate of mortality and the risk of infection. I regret to see so sweeping a statement with no inquiry into the causes of failure It would point to some mal-administration in the method of quinine distribution, jungle cutting, tank treatment, and other methods of mosquito destruction. Such methods, if correctly applied and supervised, should have resulted in a lowered death-rate, and there seems a necessity for an inquiry into the methods of carrying out these antimalaria measures. The matter is of far too much importance to be thrown aside by so sweeping a statement when the chances of mal-administration are so great.

July 31st.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

King's Birthday Honours.

THE members of the medical profession throughout Australia are much gratified at the inclusion of Sir A. MacCormick, M.D., of Sydney, in the list of new knights in honour of the King's birthday. Sir A. MacCormick, who is a graduate of the University of Edinburgh, came to Sydney as an assistant to Professor Anderson Stuart. He devoted his attention to surgery, and after a few years at the University of Sydney decided to begin practice. He soon acquired a reputation as a singularly gifted operator, and took a leading position, not only in his own city, but among Australian surgeons generally. For many years he has been surgeon to the Sydney Hospital and lecturer on surgery in the University. Sir A. MacCormick has never evinced any desire to take part in public questions, and has not contributed largely to literature, but his work is recognised inside the profession as exceptionally good, and satisfaction is expressed that his distinction is conferred purely as a tribute to professional merit.

Small-pox in Sydney.

For some weeks past cases of an eruption which has been diagnosed as chicken-pox have been occurring in Sydney. A number of such cases having occurred in a large clothing factory the proprietors asked the public health officials to inquire into the matter. One patient was in consequence sent to the Coast Hospital for observation, and as a result the health authorities believe that upwards of 60 cases of small pox of very mild type have occurred since April, the infection coming probably from Vancouver At date of writing the Premier of New South Wales states there is no occasion for a panic, but the position has a serious aspect as the population of New South Wales is practically unvaccinated

Brisbane Medical School

The proposal to establish a medical school at the University of Brisbane has come up for discussion Considerable protest in opposition had been made by a section of country practitioners Dr E S Jackson proposed the scheme in a long address, in which he combated the idea that it would lead to overcrowding, and it was seconded by Dr J L Gibson An amendment to take a referendum of the branch on the matter was proposed by Dr E McDonnell (Toowoomba), and seconded by Mr O Smithson (Mount Morgan) The amendment was carried by 30 votes to 5, and on being put as the motion was carried unanimously

Venereal Diseases among Aboriginals

The annual report of the department in West Australia states that 52 natives suffering from venereal disease were sent to hospital, 120 were discharged during the year as cured, and 57 remained under treatment Since the special hospitals received patients 405 have been treated, of whom 103 have died This striking mortality is partly accounted for by the fact that many are moribund on admission During the year an expedition to collect natives fit for lock hospitals was also directed to pay attention to the prevalence of leprosy Only one leper was discovered 2546 natives were in receipt of rations during the year The report states that the treatment of natives by European employers is uniformly good

School Medical Inspection in New South Wales

The State Government has approved the appointment of ten additional (to the three original) medical inspectors of schools at a cost of £5000 a year This sum will cover (1) Administration, (2) investigation of epidemics, (3) medical examination of intending teachers, (4) lectures to teachers and trainers, (5) inspection of school buildings, (6) examination of school children, (7) first treatment in schools for ophthalmia, (8) lectures to nurses, and (9) visits to parents of defective children by nurses The medical examination of children will include eyes, ears nose, throat, and teeth The heart and lungs will only be examined in special cases, as the aim is to attend to those defects most frequently found Endeavours will be made to make the examination comparable with that of other States

July 2nd

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES —A council meeting of this association was held at 34 Copthall avenue, E C, on August 14th Dr Balding J P, presiding The council considered a claim made by certain boards of guardians to receive the fees paid to in door Poor law medical officers by Insurance Committees for attendance on resident members of their staff who had become panel patients The honorary secretary had brought it to the notice of the Insurance Act Committee of the British Medical Association, who had instructed the medical secretary to send a strong protest against such a practice to the Local Government Board The honorary secretary had also brought the subject before the representative meeting at Brighton, where a resolution condemning the practice was unanimously carried The council hoped that all their in door Poor law brethren would resist such unworthy treatment, and refuse to go on the panel, unless all fees paid by the Insurance Committees were handed over to them without deduction Dr Major Greenwood was unanimously elected as representative of the association upon the newly constituted Insurance Act Committee of the British Medical Association The council then considered the arrangements for the next annual meeting, and it was resolved that this should be held at Burnley in 1914, and the arrangement should be left in the hands of Dr Agnew, the Burnley representative on the council in conjunction with the honorary secretary

Obituary.

EDWIN ELLEN GOLDMANN, M D FREIBURG,

HONORARY ORDINARIUS PROFESSOR OF SURGERY AT THE UNIVERSITY OF FREIBURG IN BADEN

Professor E E Goldmann, whose death occurred on August 12th at Freiburg, was born on Nov 12th, 1863, at Burghersdorp, South Africa, one of the three sons of Mr B N Goldmann, and a brother of Mr Charles Sydney Goldman, M P for Penryn and Falmouth A delicate child he spent much time on the farms, but studied at the Albert Academy, Burghersdorp, and showed from his earliest years a love of learning and of art, displaying great aptitude
and
and
the
school at Burghersdorp he laid the foundations of his notable career He received his later education at the University of Breslau and at Freiburg and London He left South Africa at the age of 14 and came to Europe with his parents, who had recognised his unusual ability and especially his musical gifts At Breslau he studied music and mathematics, read classics and philosophy, but on leaving the gymnasium, as the recipient of many prizes, he went to the University of Freiburg to study medicine In 1888, shortly after he qualified, he worked under Professor Weigert in Frankfurt am Main, and in this way became a first rate microscopist Appointed first assistant of the Surgical Clinic at Freiburg, in 1891 he became a *privat docent* and in 1895 extraordinary professor, being also appointed surgeon of the Diakonissen Krankenhaus

Goldmann s first work was mainly in the direction of biological chemistry, but his name will always be associated with his discoveries in connexion with intravitam staining of tissues In the splendid address in Pathology, delivered before the recent International Medical Congress, Professor Ehrlich refers to Goldmann s labours as among those that have definitely advanced both our knowledge and our opportunities of learning, and we have already pointed out in
THE LANCE
that his hr
enormously
blue as a histological reagent by Ehrlich led to fruitful discoveries, but its injection into the living blood stream was precluded by its poisonous qualities Goldmann, however showed, notably in a communication which appeared in THE LANCET of May 4th 1912, that other blue pigments do not possess this disadvantage, and that living animals injected with pyrrhol blue and isamine blue remain in unimpaired health while subsequent microscopic sections prepared from their tissues show the dyes to be incorporated in certain granular cells scattered through the various organs By means of the intravitam isamine blue stain it became possible to differentiate certain of the connective tissue corpuscles of the skin and subcutaneous region, the histogenetic migratory cell found in all organs except the nervous system, the stellate cells of the liver first described by Kupffer, the interstitial cell of the testicle, the cortical cells of the suprarenal body, and the epithelium of the renal tubules As an improvement in mere microscopic technique the advance was thus an enormous one, but Goldmann also showed that the action of these cells in reference to this stain was a *guide to the physiologist and pathologist* in determining the functions of cells in reference to normal products of metabolism or other foreign (pathogenic) substances The cells having the power of attracting the foreign dye were found to have the same power in reference to such materials as fat, glycogen, and iron In the light of the knowledge obtained by the intravitam method of staining he pursued the subject in reference to the functions of the placenta, and showed that certain granular cells of that organ have the power of attracting nutrient materials from the maternal blood, and temporarily storing them before passing them on to the fœtal circulation for distribution to the embryonic tissues These tissues in their turn have varying powers of selection for the substances in question, and the whole investigation was a striking example of the importance of the method for elucidating function

have at the present moment four patients recently operated upon under my care.

I was not aware that the paper was to be read, and unfortunately was unable to be present at the sectional meeting, so I take this opportunity of bearing testimony to the great merits of this method of dealing with serious infections of the appendages in young women. As I have described in detail and figured the operation, as performed by me, for the forthcoming edition of "Burghard's Operative Surgery," I will not now give the obvious arguments in favour of it.

I am, Sir, yours faithfully,

W. BLAIR BELL.

Liverpool, August 18th, 1913.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians of London and of the Council of the Royal College of Surgeons of England on July 31st diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon 86 candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the by-laws. The following is a list of the successful candidates. :—

George William Macbeath Andrew, B.A. Cantab., Cambridge University and Guy's Hospital; John Vere Orlebar Andrew, London Hospital; Basil [illegible] Mary's Hospital; Kathleen Jane Armstrong [illegible] Stephen Leonard Baker, London Hospital, [illegible] chester University; John Rawlings Barrow-Clough, Guy's Hospital; Margaret Mary Basden, Royal Free Hospital; Edgar James Boyd, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Edward Albert Brock, St. Bartholomew's Hospital; Arthur Edward Brown, B.A. Cantab., Cambridge University and University College Hospital; Winifred Finnimore Buckley, Royal Free Hospital; Charles Frank Burton, Ennis Ratcliff Chambers, and Nai Cheune, London Hospital; William Hunter Watson Cheyne, B.A. Cantab., Cambridge University and King's College Hospital; Irene Nancy Clough, Royal Free Hospital; Donald Murray Connan, Westminster Hospital; Herbert William Cooke, University College Hospital and Bristol University; Rolf Creasy, Guy's Hospital; Harry Edmund Creswell, B.A. Cantab., Cambridge University and University College Hospital; Herbert Leslie Cronk, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Jules Maurice Curé, St. Bartholomew's Hospital; Manindranath Das, M.B. Calcutta, Calcutta University and London Hospital; Richard William Davies and Sidney Barron Depree, St. Mary's Hospital; David John Evans, M.B., Ch.B. Birm., Birmingham University; Henry William Evans, Guy's Hospital; Hubert Gibson, Liverpool University; Alfred Leslie Pearce Gould, B.A. Oxon., Oxford University and University College Hospital; Charles Hamilton Gould, Guy's Hospital; Malcolm Gross, Westminster Hospital; Edward Charles Hanna, M.B. Tor., Toronto University, Middlesex and University College Hospitals; Alexander Murchison Humphry, Cambridge University and St. Bartholomew's Hospital; Arthur Ernest Williams I[illegible] Hospital; George Dearden Jameson, I[illegible] University and St. Bartholomew's [illegible] Hilton Jones, Guy's Hospital; John Wallace Kemp, Guy's Hospital; Geoffrey Langdon Keynes, M.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Reginald Hutchinson Lucas, Guy's Hospital; Jessie McDonald, M.B. Tor., Toronto University; Margaret Josephine McEnery, Royal Free Hospital; William John McKay, B.A., M.D., C.M. Manitoba, Manitoba University and University College Hospital; Douglas Duncan Malpas, Middlesex Hospital; Reginald Victor Martin, L.M.S.S.A., St. Mary's Hospital; Cyril Frederick Mayne, B.A. Cantab., Cambridge University and St. George's Hospital; James Dennis Mercer, Manchester University; Alan Vivian Moberly, Guy's Hospital; William Frank Morgan, London Hospital; Francis Henry Mosse, M.A. Oxon., Oxford University and King's College Hospital; Gerald Thom[illegible] Way Li[illegible] James [illegible] Cantab [illegible] Arthur [illegible] King's College Hospital; Matthew Wallace Paterson, Manchester [illegible] ighes Patey, Guy's Hospital and [illegible] Cardiff, and Charing [illegible] Quinton, London Hospital; Koty Venkata [illegible] University and Charing Cross Hospital; Martin Owen Raven, B.A. Oxon., Oxford [illegible] Evelyn Dennis Scott and Arthur Leonard Shearwood, Guy's [illegible] Shore, B.A. Cantab., Cambridge University [illegible] Hospital; John Smith Sloper, St. Thomas's [illegible] il Soden, B.A. Cantab., and Douglas Leigh Spence, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Mildred Blanche Stogdon, Royal Free Hospital; Archibald William Taves, M.D. Columbia, Columbia University; [illegible] Guy's Hospital; and Harry Addison [illegible] niversity and London Hospital.*

* Diploma of M.R.C.S. conferred on July 10th, 1913.

Diplomas in Public Health were granted conjointly by each College to the undermentioned 29 candidates:—

Ewald Mouat Balthasar, L.R.C.P., M.R.C.S., St. Mary's Hospital; Arthur Francis Bell, M.B., B.S. Melb., Melbourne University and St. George's Hospital; William Bethune, M.B., C.M. Edin., [illegible] University College; [illegible] Guy's Hospital and [illegible] L.M.S. Punjab, Punj[illegible] Robert Dunstan, M.B. Lond., L.R.C.P., M.R.C.S., London Hospital; Andrew Leslie Dykes, M.D. Edin., Edinburgh University [illegible]; Robert Philip Garrow, M.D. Aberd., [illegible] King's College; Arthur Gaskell, F.R.C.S. [illegible] University College; Samuel Ernest Gill, [illegible] .R.C.S., St. Bartholomew's Hospital and University College, Nottingham; Christina Love Goode, M.B., B.S. Melb., Melbourne University and University College; Claud Sebastian van Renen Harwood, M.B., B.S. Lond., L.R.C.P., M.R.C.S., Westminster Hospital and Royal Institute of Public Health; Abd el Aziz Ismail, L.R.C.P., M.R.C.S., Cairo and King's College; Robert George Johnson, M.B. Lond., L.R.C.P., M.R.C.S., Bristol University and University College; Percival Maurice Keane, L.R.C.P. & S. Irel., Belfast and University College; Gerard Ainslie Kempthorne [illegible], M.R.C.S., St. Thomas's Hospital a[illegible] llege; Norman Maclean Leys, M.B. [illegible] niversity and Westminster Hospit[illegible] M.B., Ch.B. St. And., St. Andrew[illegible] College; John Alfred Steele Phillips (Captain, I.M.S.), L.R.C.P. & S. Edin., L.F.P. & S. [illegible] Medical College; I[illegible] Lond., L.R.C.P., [illegible] Medical College, a[illegible] Powell L.R.C.P., [illegible] Pugh M.B., Ch.[illegible] nen and University College; Balwant Rai, L.M.S. Punjab, Punjab University and University College; Shobha Ram, M.B. Lahore, Punjab University and University College; Hugh Godwin Sherren (Captain R.A.M.C.), L.R.C.P., M.R.C.S., London Hospital and Royal Army Medical Col[illegible] M.B., Ch.B. Edin. Edinburgh [illegible] I.M.S.), M.D. Glasg., Glas[illegible]

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The Licence in Dental Surgery was conferred upon Mr. Clementson Glover, of Guy's Hospital.

FOREIGN UNIVERSITY INTELLIGENCE.—*Marburg:* Dr. Fritz Loening has been recognised as *privat-docent* of Medicine and Dr. Georg Magnus as *privat-docent* of Surgery and Orthopædics.—*Marseilles:* Dr. Aubaret, of Bordeaux, has been appointed to the chair of Clinical Ophthalmology, in succession to the late Dr. Guende.—*Mobile (University of Alabama School of Medicine):* Dr. Thomas P. Sprunt has been appointed to the chair of Pathological Anatomy.—*Munich:* Dr. L. von Zumbusch has been offered the Extraordinary Professorship of Dermatology and Syphilis held by the late Dr. Kopp. Dr. Rudolf Allers has been recognised as *privat-docent* of Psychiatry and Dr. Welhelm von Stauffenberg as *privat-docent* of Medicine. Dr. W. Heuck, of Bonn, has been recognised as *privat-docent* of Dermatology and Syphiligraphy.—*New York (Columbia University College of Physicians and Surgeons):* Dr. Hans Zinsser, professor in the Leland Stanford University, San Francisco, has been appointed to the chair of Bacteriology, in succession to the late Dr. Hiss.—*Rennes:* Dr. Lautier has been appointed Professor of Anatomy, in succession to Dr. Lhuissier. Dr. Millardet has been appointed Professor of Hygiene and Forensic Medicine, in succession to Dr. Le Damany.—*Strasburg:* Dr. Nicolai Guleke, *privat-docent* of surgery, has been granted the title of Professor.—*Sydney:* Dr. E. H. Molesworth has been appointed Lecturer in Dermatology.—*Toulouse:* Dr. A. Rémond, clinical professor of mental diseases, has been appointed to the chair of Clinical Medicine, in succession to Dr. C. Caubet. Dr. Gorse has been appointed Professeur Agrégé of General Surgery.—*Tübingen:* Dr. Karl von Korff, *privat-docent* of anatomy, has been granted the title of Extraordinary Professor.—*Vienna:* Dr. Richard Kretz, professor of pathological anatomy in Würzburg, has returned to Vienna as *privat-docent* of his subject.

We regret to learn of the death, at the age of 73, of Mr. Walter Whitehead, late professor of surgery in the Victoria University of Manchester. The event occurred at Colwyn Bay on Tuesday last.

Donations and Bequests.—The late Mrs. A. T. O'Callaghan, of Cheltenham, has bequeathed £3000 to the Warneford Hospital, Leamington (in memory of her three sisters), £2000 to the Cheltenham General Hospital, and £300 to the Victoria Home for District Nurses at Cheltenham.

Royal Dental Hospital of London School of Dental Surgery.—A series of post-graduate lectures will be given during the months of October and November, 1913, on Tuesdays, at 6 P.M., as follows:—Oct. 21st, The Theoretical Basis of Vaccine Therapy, by Dr. W. J. Penfold; Oct. 28th, Dental Caries from a Clinical Standpoint, by Mr. J. G. Turner; Nov. 4th, The Lessons of the Routine Administration of Anæsthetics in Dental Surgery, by Dr. Dudley Buxton; Nov. 11th, The Mechanical Treatment of Difficult Dentures, by Mr. G. H. Berwick; Nov. 18th, The Third Molars, by Mr. W. H. Dolamore; Nov. 25th, Further Notes on Periodontal Disease, by Mr. J. F. Colyer. The fee for the course is £2 2*s.*, but past and present students of the hospital and internal students of the University of London will be admitted free.

Liverpool Police Surgeons.—The Watch Committee of the city of Liverpool recently invited applications for the position of police surgeon. The salary was to commence at £80 per annum, increasing after three years to £100 per annum. The duties were to attend the policemen in the district and prisoners at the bridewells when required, for which extra fees would be paid. Formerly a surgeon was attached to a police division and was paid £80 per annum. It has been found better to have all the men attended in districts, as men in a division lived scattered over large areas. The local division of the British Medical Association having objected to the terms offered, and made a representation of their views to the Watch Committee, a resolution was passed by that body at the beginning of the week raising the salary to £100 at commencement, and granting fees of 21*s.* for ambulance lectures, 3*s.* for vaccinations, and 2*s.* 6*d.* for the examinations of candidates for the constabulary force.

Deaths of Eminent Foreign Medical Men.—The deaths of the following eminent foreign medical men are announced:—Dr. Sigmundt, Medical Councillor, of Wurtemberg.—Dr. Edwin E. Goldmann, honorary professor of surgery in the University of Freiburg, whose researches in pathological anatomy and microscopical staining methods have earned him a world-wide reputation. He was 49 years of age and was looked upon as an Englishman, having been born in Cape Colony and having married an English lady, daughter of the late Mr. Bosworth Smith.—Dr. Otto Hjelt, formerly professor of pathological anatomy in the University of Helsingfors.—Dr. Horace F. Jayne, formerly professor of anatomy in the University of Pennsylvania, Philadelphia.—Dr. Ellet O. Sisson, formerly professor of histology in the Keokuk Medical College.—Dr. Fritz Albert Andersen, of Orskog, Norway, formerly of Madison, South Dakota.—Dr. Jorgen Henrik Olsen, formerly district medical officer of Ytre Narnalden, Norway, aged 69.

Worthing Hospital.—The operation of the National Insurance Act has had a very marked effect on the amounts usually contributed to the local hospital at Worthing. Not only have the sums collected in boxes and the amounts subscribed by employees of various firms shown a falling off, but the annual subscriptions and donations have produced a smaller amount than usual. The annual report of the committee of management shows a deficit of £420, and in addition it has been necessary to expend out of capital a sum of £564 10*s.* This has been partly due to a deficit of £378 6*s.* 10*d.* with which the year began, and partly to the fact that certain extraordinary expenditure, amounting to £313 15*s.* 7*d.*, has been defrayed out of income instead of being charged to capital account. A satisfactory feature of the report, however, is that the cost of erecting the new out-patients department has been entirely liquidated, thanks to an anonymous gift of £1000 and a supplementary appeal. The hospital had 310 in-patients and 2681 out-patients during the year, as well as 558 casualties and 99 urgency and accident cases.

Emil Chr. Hansen's Fund.—According to the will of the late Professor Emil Chr. Hansen and his wife a fund bearing his name has been established. At intervals of two or three years, beginning in 1914, a gold medal bearing his effigy and accompanied by a sum of at least 2000 kroner is to be awarded on May 8th to the author of a meritorious publication on some microbiological subject, and recently published in Denmark or elsewhere. In 1914 the medal will be awarded to a worker in the field of medical microbiology. Further particulars will be given by the president of the board of trustees, Professor Dr. S. P. L. Sorensen, the Chemical Department of Carlsberg Laboratory, Copenhagen.

The Third International Congress for Diseases of Occupation.—This congress will be held in Vienna in September, 1914. It will be strictly scientific, and the first place will be given to experts in the respective subjects under discussion, but the collaboration of all who are in any way interested therein is also desired. The subjects for discussion will be: 1. The Physiology and Pathology of Fatigue, especially with regard to professional work, overwork, and nightwork. 2. Work in Hot and Damp Air. 3. Anthrax. 4. Pneumoconiosis. 5. Electrical Industrial Injuries. 6. Industrial Poisoning, especially by anilin, mercury, and lead. 7. Industrial Injuries to Hearing. 8. Independent communications. All persons and corporations interested in the study of occupational diseases are invited to become ordinary members of the congress. The subscription is £1. The presidents of the congress are Dr. Francis von Haberler, councillor of the ministry, and Dr. A. Schattenfroh, professor of hygiene at the University of Vienna. The general secretary is Dr. Ludwig Teleky, Vienna IX., 23, Türkenstrasse, from whom more detailed information can be obtained on application. Among those from this country who have consented to take part are Sir Thomas Oliver, Sir Arthur Whitelegge, Dr. T. M. Legge, Mr. H. W. Armit, the Association of Certifying Factory Surgeons, and the Medico-Legal Society.

King's College Hospital Medical School (University of London).—In view of the increased amount of instruction which is to be given in the new hospital at Denmark Hill, commencing on Oct. 1st next, the following additional appointments have been made to the medical staff of that school:—Dr. Norman Dalton, lecturer on medicine. Dr. F. W. Tunnicliffe, Dr. J. Charlton Briscoe, and Dr. H. W. Wiltshire, lecturers on practical medicine. Dr. F. W. Tunnicliffe, lecturer on therapeutics and applied pharmacology. Mr. G. Lenthal Cheatle, joint lecturer on surgery. Mr. T. Percy Legg, lecturer on operative surgery. Dr. Hugh Playfair. [illegible] Mr. H. Willoughby Lyle, lecturer [illegible] Mr. G. J. Jenkins, lecturer on [illegible] F. W. Silk, lecturer and instructor [illegible] Flux, instructor in anæsthetics. Dr. P. B. Ridge, lecturer on morbid anatomy and histology and curator of the museum. Dr. Robert Knox, teacher of radiography. The following additional appointments have been made to the staff of King's College Hospital:—Dr. Hugh Playfair, promoted to the position of obstetric physician; Sir Ronald Ross to be physician for tropical diseases; Dr. Robert Knox to be radiographer; Dr. R. W. A. Salmond to be assistant radiographer; Dr. E. B. Clayton to be medical officer in charge of the department of massage and electro-therapeutics; Mr. G. W. Shore to be Sambrooke medical registrar; and Mr. H. P. Ashe to be resident casualty officer.

The Biennial Conference of the National Association of Teachers of the Deaf.—The National Association of Teachers of the Deaf held their biennial conference at Glasgow from July 28th to 31st, under the chairmanship of Dr. W. H. Addison. It was chiefly remarkable for the attention paid to the young deaf child; indeed, it will be known in future as the "Conference of the Young Child." On July 29th the following motion was put forward, proposed by Mr. Sibley Haycock, of London, and seconded by Mr. A. J. Story, of Stoke-on-Trent: "That this conference is of opinion that the compulsory commencing school age of deaf children should be brought into line with that of normal children and of blind children; that, provided suitable arrangements are made, deaf children should be permitted to attend school from the age of 3 years, and that grants should be payable in respect of such children attending school." A reactionary amendment, proposed by Mr. J. Welsh, of Glasgow, and Mrs. W. H. Addison, was negatived, and the original motion carried by between 60 and 70 votes to 13. The matter was alluded to further in the discussion, under the chairmanship of Dr. Kerr Love, of a paper by Mr. Macleod Yearsley on the Coöperation of the Teacher and the Doctor, when those who opposed the early education of the deaf child were condemned as comparable to those who, by pseudo-scientific chatter and sham sentiment, fought against Darwin, Lister, and the introduction of chloroform. The passing of this resolution marks an important epoch in deaf education, for it recognises the great principle of giving to the young deaf child that physiolgical education which, by reason of his loss of hearing, he cannot obtain otherwise. Early education makes for better articulation, better language, and gives some chance of that automatism of speech which the hearing child so rapidly acquires.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—The following scholarships, prizes, and certificates have been awarded:—Lyell medal and scholarships and Hetley clinical prize, A. O. Gray; John Murray medal and scholarship, F. W. Browne; Leopold Hudson prize, H. A. Lucas; New Zealand Scholarship, T. Julian; second years' exhibition, D. W. J. Andrews. Medicine prize, F. E. Feilden. Surgery prize, F. E. Feilden; certificate—T. C. Kidner. Practical medicine prize, F. E. Feilden; certificates—S. W. M. Jones, B. M. Mitra, and B. H. Singh. Practical surgery prize, C. P. Sells; certificates—B. M. Mitra and F. E. Feilden. Practical Midwifery prize, O. C. Link. Pathology prize, T. C. Kidner; certificate—B. H. Singh. Psychiatry prize, H. C. Samuel; certificate—C. J. B. Way. Pharmacology prize, E. H. Lake; certificate—F. C. Mason. Anatomy prize, D. W. J. Andrews; certificates—W. H. Dye, H. De Morgan, D. C. Ogilvie, and W. L. Thomas. Physiology prize, D. W. J. Andrews; certificate—D. C. Ogilvie. Practical anatomy prize, D. C. Ogilvie; certificates—J. Fox Russell and C. J. L. Wells. Histology prize, E. H. Lake; certificates —F. C. Mason and W. B. Gabriel. Embryology prize, W. T. Warwick; certificate—F. C. Mason. Practical pharmacy prize, L. G. Lunnon; certificates—H. C. Samuel and R. F. S. Mason. Biology prize, G. Howorth; certificates —C. Shelton, L. G. Lunnon, and A. K. Ince Jones. Organic chemistry prize, F. C. Mason; certificates—E. H. Lake, A. Selby Green, and W. B. Gabriel. Inorganic chemistry prize, M. B. Tench; certificates—A. I. Cox and J. J. Chiappa. Physics prize, A. I. Cox; certificates—M. B. Tench and A. G. Hewer.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

National Insurance Act (1911) Amendment Bill.

PARLIAMENT was formally prorogued on August 15th, and is not to meet again till January or February of next year. Among the measures which received the Royal Assent was the National Insurance Act (1911) Amendment Bill. When the Bill reached the House of Lords, having already passed the Commons, it was one of a large number of measures for the discussion of which the Second Chamber had only a few days of the session left. Several peers complained that a thorough investigation of the merits of the Amending Bill was impossible in the circumstances.

Viscount MIDLETON emphasised this complaint, and pointed out that a revision by the Second Chamber of the original National Insurance Act had in like manner been made impossible because no adequate time was available for so huge a task. Nearly all the provisions in this Amending Bill, he added, had been pressed on the Government when the original measure was under discussion as difficulties which some day would have to be faced.

Several amendments, mostly of a drafting character, were introduced by the Lords into the Bill, and on Thursday, August 14th, it returned to the Commons, where the changes were approved. All that then remained was for the Bill to receive the Royal Assent, and this was signified on Friday, the 15th.

At the same time the following further measures became law: The Mental Deficiency and Lunacy (Scotland) Bill, the Public Health (Prevention and Treatment of Disease) Bill, and the Highlands and Islands (Medical Service) Bill.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 13TH.

The Medical Service of Jamaica.

Dr. CHAPPLE asked the Secretary of State for the Colonies whether he would call for a report from the Governor of Jamaica on the system of medical service on the island, with a view to its reorganisation in order to meet the pressing needs of the population.—Mr. L. HARCOURT replied: The information at my disposal indicates that the medical service of Jamaica is as good as financial exigencies permit, and that every attention is being paid to its improvement. In these circumstances I should not feel justified in calling for a detailed report, but I will invite the Governor to say whether he considers that there are any serious grounds for dissatisfaction with the present system.

Dr. CHAPPLE asked the Secretary of State for the Colonies, further, whether he would take steps to provide that increased facilities were given to ordinary medical practitioners in the island of Jamaica for visiting the hospitals and for rendering such service as would enable them more effectively to cope with the increasing mass of contagious and other diseases.—Mr. HARCOURT replied: I will ask the Governor to consider whether increased facilities are required.

Nomadic Workers and Medical Benefit.

Sir JOHN JACKSON asked the Chancellor of the Exchequer whether he was aware that the provisions of the National Insurance Act placed difficulties in the way of labourers engaged in the construction of public works; that these men, in pursuance of their employment, went from one job to another, and as a consequence few were able to obtain the sick and medical benefits for which they were compelled to subscribe; whether he would consider the advisability of an alteration either in the Act itself or in the Regulations to meet the difficulty mentioned, and would he say what a man was to do when the nearest panel doctor was four or five miles away from the work under construction.—Mr. MASTERMAN (for the Chancellor) replied: Arrangements are being made whereby insured persons who are frequently moving from place to place in the course of their employment will be enabled to obtain medical benefit wherever they may happen to be in Great Britain.

Sir C. KINLOCH-COOKE: Is the right h
that these men are not able to obtain the
I have said that arrangements are being
able to get it. They can obtain it now if they give notice, but we are trying to get rid of the necessity for giving notice.

Sir C. KINLOCH-COOKE: How can they get it if the panel doctor is four or five miles away?—Mr. MASTERMAN: They will get medical attendance from the nearest doctor available.

The Payment of Panel Doctors.

Mr. FRED HALL asked the Secretary to the Treasury if, in the case of the county of London, panel doctors had been paid in respect of medical benefit under the National Insurance Act at the rate of 1s. 6*d*. per insured person for the second quarter of the present year, while they were paid at the rate of 1s. 9*d*. for the first quarter; if, further, no payment had been made in regard to persons added to the doctors' lists in the second quarter; if all payments due to medical practitioners for the first half-year had now been made as regards London; and, if so, he would give the total amounts paid to panel doctors for the first and second quarters respectively, and the total numbers of insured accepted persons for the same periods in respect of which such sums were paid.—Mr. MASTERMAN, in a written reply, stated: The honourable Member is mistaken in supposing that a payment of a previously ascertainable amount is due at the end of each quarter to each doctor on the panel. As I have frequently pointed out, the precise amount actually due to any particular doctor can only be finally determined at the end of the year. The Regulations, however, provide that the Insurance Committee shall make payments in advance at the end of each quarter of such amounts as may be agreed for this purpose, and London doctors have accordingly received advanced payments at the rate of 1s. 9*d*. per insured person on their list for the first quarter, and 1s. 6*d*. for the second quarter. Payments were made on March 10th, 9*d*.; April 22nd, 1*s*.; June 10th, 9*d*.; July 15th, 9*d*. To facilitate this latter payment on the last day of the quarter and to avoid delay the amount paid was based on the figures for the first quarter. A further payment will be made on August 23rd, based on the figures for the second quarter, and any balance found to be payable will be added thereto.

Mr. BUTCHER asked the Chancellor of the Exchequer whether, in view of the fact that a sum of 7*s*. per insured person per annum was paid to doctors on the panel for medical treatment, exclusive of drugs and medicine, he would state the reason why a sum of only 4*s*. per insured person per annum was allowed to Friendly Societies' medical associations for providing medical treatment, including drugs and medicines.—Mr. MASTERMAN replied: The honourable Member has been misinformed. When the expenditure of an approved institution in respect of their insured members upon medical treatment (including the provision of medicines and appliances) and all reasonable establishment charges amounts to 9*s*. per head, the amount of the contribution to be made to the institution by the Insurance Committee will be a sum equal to 9*s*. per insured member of the institution.

Salaries of Prison Doctors.

Mr. CHANCELLOR asked the Secretary of State for the Home Department whether the salaries of the prison doctor's at Holloway had recently been raised; and, if so, whether this was in consequence of duties involved in the treatment of suffragette prisoners.—Mr. MCKENNA replied: The scale of pay of the deputy medical officers at Holloway Prison has, in common with those of all other whole-time medical officers and deputy medical officers throughout the prison service, lately been improved, but this improvement was on general grounds, and had no connexion with the treatment of suffragette prisoners.

THURSDAY, AUGUST 14TH.

Medical Inspection of Schools in Ireland.

Mr. O'DONNELL asked the Chief Secretary for Ireland to state what steps had been taken to frame a scheme for the medical inspection and treatment of children in Irish national schools; and whether schemes of this kind had been for years in operation in England and Scotland.—Mr. A. BIRRELL replied: The Commissioners of National Education have invited the managers of the National schools to submit schemes for

BURY INFIRMARY.—Senior House Surgeon. Salary £110 per annum, with board, residence, and washing.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

CAN[illegible] House Surgeon for six [illegible]

CAN[illegible] ry.—Assistant Medical [illegible] n, with board, lodging, [illegible] uent Assistant Medical [illegible] lodging, washing, and [illegible]

[illegible] Surgeon for six [illegible] board, residence, [illegible]

[illegible] al Officer. Salary [illegible] washing.

[illegible] Medical Officer.

CENTRAL CHINA AND SOUTH INDIA.—Female Medical Missionaries and Doctors.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per [illegible]

CHE[illegible]

COL[illegible]

CORNWALL COUNTY SANATORIUM.—Medical Superintendent. Salary [illegible]

[illegible] **HOSPITAL, Coventry.**—Senior House [illegible] and Junior House Surgeon. Salary [illegible] and of two latter £110 and £100 per annum respectively, with residence, board, laundry, and attendance.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon, unmarried. Salary at rate of £75 per annum, with board and laundry.

DURHAM COUNTY SANATORIUM.—Medical Superintendent. Salary £400 per annum, with quarters and board.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and washing.

GATESHEAD DISPENSARY.—Assistant Medical Officer. Salary £200 per annum.

[illegible] and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence.

[illegible] ouse [illegible] ficer, [illegible] dical [illegible]

MARGATE, ROYAL SEA BATHING HOSPITAL FOR SURGICAL TUBERCULOSIS.—Resident Surgeon. Salary at rate of £120 per annum, with board, residence, and laundry.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Senior House Surgeon and Junior House Surgeon for six months. Salary of former at rate of £100 per annum, and of latter at rate of £80 per annum, with board, apartments, and laundry.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, residence, and laundry.

NORTHAMPTON COUNTY ASYLUM, Berrywood, Northampton.—Junior Assistant Medical Officer. Salary £200, with board, lodging, and washing.

NOTTS COUNTY COUNCIL.—Tuberculosis Officer. Salary £400 per annum.

OXFORD COUNTY ASYLUM, Littlemore, near Oxford.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, and washing.

PARK HOSPITAL FOR CHILDREN, Hither Green, London, S.E.—Assistant Medical Officers. Salary £150 per annum, with board, lodging, and washing. Also Temporary Resident Assistant Medical Officer.

[illegible] **CORNWALL HOSPITAL.**—House [illegible] y £75 per annum, with board, [illegible] Officer and Public Vaccinator.

PRESTON, COUNTY ASYLUM, Whittingham, Lancs.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.

QUEEN CHARLOTTE'S [illegible] Assistant Resident [illegible] of £50 per annum, [illegible]

RAINHILL, NEAR LIV[illegible] Officer, unmarried [illegible] board, attendance, and washing.

ST. [illegible] E.— [illegible] alary [illegible]

SAL[illegible] un- [illegible], and lodging.

[illegible] narried.

[illegible] House [illegible] nonths. [illegible] board, residence, &c.

SUNDERLAND ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board, residence, and laundry.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and attendance.

[illegible], Stratford, E.—Senior [illegible] an. Salaries at rate of [illegible]

[illegible] W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry allowance

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with rooms gas, coals, and attendance.

WINDSOR, KING EDWARD VII. HOSPITAL.—Second House Surgeon. Salary £75 per annum, with residence, board, laundry, and attendance.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Two House Surgeons. Salary £125 per annum, with board, rooms, and laundry.

WOL[illegible] Salary [illegible]

YOR[illegible] Medical [illegible] lodging, and attendance.

THE *Chief Inspector of Factories, Home Office, London, S.W.,* gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at North Belfast, in the county of Antrim.

Births, Marriages, and Deaths.

BIRTHS.

ALMOND.—On August 14th, at 6, Brock-street, Bath, the wife of [illegible] B.Ch. Oxon., M.R.C.S. [illegible] denham-road, S.E., to [illegible] y, the wife of Thomas [illegible]

MARRIAGES.

KING—DICKINS.—On August 12th, at the Parish Church, Chipping Barnet, Surgeon W. H. King, R.N., to Elsie Mary, daughter of Mrs. Dickins and the late H. C. Dickins, of Barnet.

DEATHS.

[illegible] at Brighton, after a few days' illness, Dr. [illegible], Frederick [illegible] lme, Upper [illegible] Yoke, M.B., [illegible] iving son of [illegible] ed 35.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Messrs. Adlard and Son, Lond.; Mr. J. W. Arrowsmith, Bristol; Dr. G. A. Allan, Carradale; *American Journal of Clinical Medicine*, Chicago; American Proctologic Society, San Francisco, Secretary of; Anglo-American Pharmaceutical Co., Croydon; A. B. L., Holland Park.

B.—Messrs. C. Birchall, Liverpool; Mr. James Berry, Lond.; Bedford County Hospital, Secretary of; Messrs. Baillière, Tindall, and Cox, Lond.; Captain E. W. C. Bradfield, I.M.S., Madras; Dr. Gurth S. Blandy, St. Albans; Mr. A. W. Badham, Kirkee; Mr. W. G. Burcombe, Lincoln; Bury Infirmary, Secretary of; Mr. B. Bernstein, Bradford; Mr. W. C. Bitting, Paris; Bristol Royal Hospital, Secretary of; Messrs. Burroughs, Wellcome, [illegible] Miss Margaret E. Briggs, Watton; Battle Creek Sanatorium, Battle Creek; Berry Wood Asylum, Northampton, Clerk to the; Messrs. Bennett Bros., Salisbury; Dr. Dudley Buxton, Lond.; Messrs. Brown and Son, Huddersfield.

C.—Cumberland County Council, Carlisle, Clerk to the; Mr. R. Brudenell Carter, Lond.; Messrs. Combridge, Hove; Chapman's Book Store, Montreal; Dr. Stephen Chauvet, Paris; Carlisle Non-Provident Dispensary, Secretary of; Canterbury Mental Hospital, Secretary of; Chesterfield and North Derbyshire Hospital, Secretary of; Mr. F. W. Clarke, Chorlton-cum-Hardy; Cumberland Infirmary, Carlisle; Messrs. J. and A. Churchill, Lond.; Mr. J. H. Chaldecott, Lond.; Camberwell Guardians, Lond., Clerk to the; Cornwall County Council, Truro, Medical Officer to the; Dr. E. Cutter, West Falmouth.

D.—Dorland Agency, Lond.; Dr. Des Vœux, Lond.; Messrs. F. Davidson and Co., Lond.; Mr. E. D. Dodge, Ruskin, Tenn.

E.—Mr. F. B. Ehrmann, Lond.; Mr. H. Elliot-Blake, Bognor; Wirkl. Geh. Ober-Med.-Rat. Professor Dr. Paul Ehrlich, Lond.; Mr. J. Edwards, Formby; Messrs. Eyre and Spottiswoode, Lond.; Engineering and General News Agency, Lond.

F.—Dr. R. Fortescue Fox, Lond.; Messrs. Ferris and Co., Bristol; Factories, Chief Inspector of, Lond.

G.—Dr. T. Graham, Narborough; Glasgow Maternity and Women's Hospital, Secretary of; Miss G. M. Godden, Weybridge; Dr. I. M. Guillaume, North Shields; Dr. James Gilroy, Ecclefechan; Mr. J. D. Gilruth, Arbroath; Mr. Edward Grimley, Lond.; Mr. C. S. Goldman, M.P., Plymouth; Mr. H. Ginn, Worcester; Mr. C. E. Green, Edinburgh; Mr. J. Gallaher, Galway; Dr. Major Greenwood, Lond.

H.—Mr. T. G. Huat, Bangkok; Halifax Guardians, Clerk to the; Messrs. Hilton and Co., Calcutta; Messrs. C. Hearson and Co., Lond.; Messrs. Hoskins and Sewell, Birmingham; Hull Royal Infirmary, Secretary of; Mr. Alfred Hands, Lond.; Captain F. W. von Herbert, Shanklin; Mr. N. Bishop Harman, Lond.; Dr. B. Hall, West Mersea; The Home Secretary, Lond.

I.—Islington, Medical Officer of Health of; International Abolitionist Federation, Lond., Secretary of; Ingham Infirmary, South Shields, Secretary of; Dr. A. E. A. Ismail, Lond.; Imperial Services Exhibition, Lond., Chairman and Committee of.

J.—Mr. A. G. Jones, Lond.; Mr. Hugh E. Jones, Liverpool; Dr. F. Wood Jones, Epsom.

K.—Mr B. R. Khanna, Lahore; King Edward VII. Welsh National Memorial Association, Cardiff, Secretary of; Miss K.; Kingston-upon-Hull, Medical Officer of Health of; Mr. James Keith, Lucerne; Colonel W. G. King, I.M.S. (retired), Hatch End; Messrs. Klose and Seidel, Berlin; Kent County Lunatic Asylum, Maidstone, Medical Superintendent of.

L.—Messrs. Lewis and Son, Bath; Dr. J. S. Low, Lond.; Liverpool Royal Infirmary, Secretary of; Liverpool Stanley Hospital, Secretary of; Miss Leigh, Lond.; Mr. T. B. Layton, Lond.; Local Government Board, Lond.; Leeds [illegible] London, Town Clerk of.

M.—Messrs. Meister, Lucius, and Bruning, Lond.; Dr. Mansell MacCulloch, Folkestone; Mrs. Montgomery, Grey Abbey; Messrs. Maple and Co., Lond.; Motor Tyre Manufacturing Co., Wolverhampton, Manager of; Dr. A. Macdonald, Culross; Mr. G. W. Munshi, Khargone; Dr. Keogh Murphy, Lond.; Messrs. Mather and Crowther, Lond.; Mr. A. Maloine, Paris; Mr. H. B. Mylvaganam, Bangalore; Medical Agency, Lond.; Monmouthshire Asylum, Abergavenny, Secretary of; Professor Dr. Juliano Moreira, Lond.; Metropolitan Asylums Board, Lond.; Mr. J. J. Metcalf, Liverpool; Mr. G. B. Messenger, Lond.; Manchester Medical Agency, Secretary of; Medical Correspondence College, Lond., Secretary of; Middlesex Hospital, Lond., Secretary-Superintendent of; Dr. J. K. Murphy, Lond.

N.—Mr. H. Needes, Lond.; Messrs. F. Newbery and Sons, Lond.; North Riding Infirmary, Middlesbrough, Secretary of. Newcastle-upon-Tyne Corporation, Clerk to the.

O.—Mr. W. H. O'Meara, Llandrindod Wells; Dr. John O'Conor, Buenos Aires; The Olympic Games, Lond., Secretary of; Sir Thomas Oliver, Newcastle-upon-Tyne; Dr. John S. Owens, Holme-next-Sea; Dr. James Oliver, Lond.

P.—Messrs. Peacock and Hadley, Lond.; Mr. F. H. Preston, Mere; Miss Perry, Lond.; Preston Royal Infirmary, Secretary of; Messrs. E. T. Pearson and Co., Lond.; Dr. Leslie Paton, Lond.; Prescot Guardians, Clerk to the; Dr. F. S. Pitt-Taylor, Blackpool.

R.—Mr. Wm. Ruttledge, Dublin; Royal College of Surgeons in Ireland, Dublin, Superintendent of Schools; Dr. Rosser, Swansea; Dr. Badh Raj, Lahore; Messrs. Rebman, Lond; The Retreat, York, Medical Superintendent of; Royal Halifax Infirmary, Secretary of; Royal Gwent Hospital, Newport, Secretary of; Royal Dental Hospital of London, Secretary of; Dr. Samuel Rideal, Lond.; Dr. A. Roemmele, Paris; Professor H. Rieder, Mieders; Royal College of Surgeons in Ireland, Dublin, Registrar of.

S.—Dr. Aziz Shehadi, Wad Medani; Messrs. Spiers and Pond, Lond.; Messrs. Slatter and Rose, Oxford; Sunderland Royal Infirmary, Secretary of; Stroud Hospital, Hon. Secretary of; Dr. G. M. Sydenham, Lond.; Miss L. Shippey, Lond.; St. Mary's Hospital, Lond., Secretary of; Scholastic, Clerical, and Medical Association, Lond.; Messrs; W. H. Smith and Son, York; Messrs. Sherratt and Hughes, Manchester; *South Wales Argus*, Newport, Monmouthshire; Sheffield University, Registrar of; Sheffield Royal Hospital, Secretary of; Messrs. M. Schaerer, A. G. (Bern), Lond.; Dr. F. M. Sandwith, Lond.; Southall-Norwood Urban District, Medical Officer of Health of; *Science* [illegible]

T. [illegible] Dr. C. Townshend, Bickerdike.

U.—University of Pennsylvania, Philadelphia.

W.—Mr. T. Webb, Leigh; Mr. R. L. Wason, Drewsteignton; Messrs. Winkworth and Co, Lond.; Whittingham County Asylum, Clerk to the; Worcestershire Newspapers, Worcester, Manager of; Warneford General Hospital, Leamington, Secretary of; Mr. E. de A. Winter, Bristol; Messrs. Wulfing and Co., Lond; Mr. B. Wheeler, Manchester; Wolverhampton General Hospital, Secretary of; Dr. G. Duncan Whyte, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. J. P. Aiken, Sheffield; Mr. T. L. Ashforth, Doncaster; Messrs. Armour and Co., Lond.; Dr. Almond, Bath.

B.—Dr. J. S. Byrne, Bradford; Messrs. Barber and Son, Wellington; Mr. W. R. Bristow, Lond.; *Bath Herald*, Manager of; Mr. A. E. Barker, Lond.; Messrs. E. J. Berryman and Sons, Lond; Bristol Corporation, Treasurer to the; Bootle Borough Hospital, Secretary of; Dr. L. H. Bennett, Paignton.

C.—Mr. L. W. Chance, Lond.; Church Army, Lond.; Miss Cork, Lond.; Dr. J. J. Cox, Buxton; Mr. H. W. Carson, Lond.

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THE LANCET.

LONDON: SATURDAY, AUGUST 30, 1913.

An Address to Students.

IN this our annual Students' Number of THE LANCET we present to our readers the usual summary of the curriculum which must be followed by the medical student before the termination of the first stage of his studies is reached by winning a position on the official roll of the medical profession.

ONCE A STUDENT ALWAYS A STUDENT.

To many students it will come as a surprise that we should allude to the attainment of registrable qualifications as only the end of the first stage of their studies. So important is it for the student to pass out of the range of compulsory examinations that it is difficult for him not to regard perpetual freedom from these irksome tests as the main object of his education. It is for this that he has undertaken an arduous curriculum, and strained his intelligence to follow and his memory to hold many things of whose utility he is doubtful; and although he will have been told inevitably and more than once during his educational career that all medical men must remain students for their lives, and that the gap which separates the man with the testamur from the man without one is largely artificial, he cannot believe it. But the circumstances of early practice, whatever branch of the profession he may elect to follow, will compel him to recognise that the more he knows the more he will ascertain the limits of his knowledge; and he will find that the tests of the qualifying bodies are no harder than those which are set before the practitioner daily, and that true conscientiousness, which must be the distinguishing characteristic of the sound physician and surgeon, is as difficult to satisfy as the most critical examiner ever was. This view of medical education should be inspiriting to the mind of the student, removing vague feelings of diffidence which may arise at any point in an elaborate course—a course which is legally bound to extend over five years, and which quite usually occupies six or more of really industrious struggle—and also filling him with admiration for the calling that he has adopted because the range of its possibilities are seen to be boundless. In the beginning he is a learner in the field where his teachers are yet learners; at all stages of his career he will become aware of his limitations; and at the end his store of experiences, which have enabled him to deal confidently with a surprising number of practical problems, will be counterbalanced by his appreciation that the progress of science knows no confines, and that his journey with truth, though it may represent a life's companionship for him, has been a very brief stage in the prolonged march of science.

We essay within the contents of this issue of THE LANCET to give complete information as to the various Universities and Medical Schools, through the medium of whose professors, class-rooms, and laboratories the student can obtain the training necessary to enable him to satisfy the demands of multifarious examiners; and it is at once apparent that in this country our medical training, so much criticised, and in a few directions still so incoherent, is none the less ably planned both to secure for the public an adequate band of professional men to undertake the private and public duties which fall to those who have the health of the country in their charge, and at the same time to allow of a proper development of scientific medicine along lines which are rapidly multiplying in number. The critics of our scheme of medical education in this country would be more convincing if there was any consensus of condemnation upon particular points, and if the remedies put forward by different reformers had the same shape or purpose. We are well aware that there is no great reason for complacency as to the curriculum as a whole, but we also know that we turn out from our medical schools young men as well equipped as the young men in similar position in any country, and demonstrably better educated than the recently qualified practitioners in most foreign lands. The recently qualified medical man cannot know everything and cannot be taught everything. But his statutory course of education furnishes him in this country with a solid beginning to clinical medicine, to which he must add from his own experiences, and which will keep him in the right line while those experiences are yet small.

THREE POINTS OF VIEW FOR THE MEDICAL PRACTITIONER.

The students who have joined our schools this year have done so under interesting circumstances. It is possibly clear to them, and is certainly clear to most of their parents and seniors, that the medical profession is undergoing rapid changes of all sorts. For the most part medical men are bound to consider their medical career from three points of view: First, they desire to discharge their duty to the public in as efficient a manner as possible so as to reduce the toll of misery exacted from the public by sickness or injury; secondly, they aspire to assist in the progress of their science and to contribute to the accumulated store of wisdom and truth on which the world depends in its combat against disease; and thirdly, they hope to obtain such material return for their work as will represent a fair reward for their public and private services. Until quite recently the public knew very little about the first of these considerations, was indifferent about the second, and was wrongly advised about the third. The student of to-day is joining our ranks when on all sides there is evidence that the medical profession is becoming better understood by the public. Moreover, simultaneously the public view is more sympathetically treated by medical men, who do not want to shield themselves from scrutiny behind some rampart of mysticism, but who can justify their right to speak authoritatively of the things which appertain to their calling because of the magnificent practical outcome of modern medicine. Medical practice is more appreciated, its difficulties are more readily recognised and its performances more justly estimated than was formerly the case, and this satisfactory position is bound to improve

THE STUDENT'S GUIDE.

SESSION 1913-1914.

◆

A Prefatory Statement.

The following is a brief explanation of the scheme upon which this guide to a medical career in this country is constructed.

The General Council of Medical Education and Registration, conveniently known as the General Medical Council, is the controlling authority, under the Privy Council, of the medical education of the land. Under the provisions of the Medical Acts various universities and corporations are recognised as being examining bodies whose degrees or diplomas entitle to medical registration, and it is among the duties of the General Medical Council to keep the official register and to ensure by periodical visitations that the tests of the various examining bodies are maintained at a due standard. We begin by describing the powers of the General Medical Council, and go on to give in detail the regulations of the various examining bodies.

But the student must be taught as well as examined, and the systems under which he can obtain instruction do not conform to one pattern. The curriculum of the medical student falls into two parts, the preliminary subjects and the professional subjects, and the two cannot be sharply divided. The extent to which they are allowed to overlap under different schemes of education varies a good deal, while the extent to which they ought to overlap is a perennial subject of debate. The important preliminary subjects are chemistry, pharmacology, physics, biology, anatomy, and physiology, and they are taught in the school proper; the professional subjects, medicine, surgery, and obstetric medicine—under which headings all forms of specialism are included—must be learned in the wards of a hospital. All schemes of medical education require a school and a hospital, but there their uniformity ends.

The first point on which the medical student has to make up his mind is whether he desires a medical degree which will give him the definite title of Doctor or Bachelor of Medicine (coupled in many cases with that of Bachelor of Surgery), or whether he will be content with a diploma certifying him to be a Member or Licentiate of one or other of the great medical corporations and as such entitled to be registered as a medical practitioner. The corporations have no longer the objection which they once had to the use colloquially by their Licentiates of the style of Doctor, and by a recent pronouncement of the Royal College of Physicians of London Licentiates of the College may now use the courtesy title of Dr. if they so wish. If the student desires a degree he must matriculate at a university and go through the course of studies required by the regulations of its medical faculty, and it is well that he should bear this in mind from the outset, for many diplomates, wishing later to become medical graduates, have been debarred from doing so through having neglected to pass a university matriculation examination at a time when they were freshly versed in their preliminary "arts" and general studies. It is particularly useful to take the London matriculation examination, which is accessible in several prominent centres, as it opens the door to the medical faculty of any British University. Accordingly we print with some detail the regulations for that standard test of a good all-round secondary education.

Next we have collected together under their respective headings the chief information concerning the facilities for medical study, both "preliminary" and "professional," and the regulations for examinations at the various teaching centres of the United Kingdom, so, for instance, that a student desiring to pursue his studies and obtain a medical degree at Cambridge, Edinburgh, or Manchester may find under one heading an account of the medical faculty of the University in question, of the hospitals which form its field for clinical instruction, and of the prizes and scholarships which it offers to the student of medicine.

It will be readily seen, however, that it is impossible to adhere rigidly to this plan without a good deal of overlapping and doubling of information, for, as is well known, the medical schools of some universities are served chiefly by hospitals in other centres. Thus the medical students of Oxford and Cambridge almost uniformly pursue their clinical studies in London, whilst any student who has gone through all his statutory training in a provincial centre may sit for a degree in Medicine at London University. Again, when we come to consider the corporations which have the power to grant diplomas qualifying their possessors for the practice of medicine we find that they usually have no schools attached to them, but that they examine students who have gone through the curriculum at any recognised metropolitan or provincial school to the satisfaction of their teachers, and in accordance with the regulations of the corporations. The plan we have adopted has been to divide the Guide into the three main headings of England, Scotland, and Ireland, and to deal with medical education in each country as a separate entity, describing first the medical faculties of the universities in each country, and following with an account of the medical corporations having powers to grant diplomas by examination. Under the heading of each university we give a general description of its arrangements for conferring medical degrees, of its facilities for preparing its students for those degrees, particulars of its scholarships and prizes, and of those hospitals affording clinical instruction which are situated in the neighbourhood of the university buildings. Following this plan, the metropolitan medical schools and hospitals are grouped in their proper place as schools of the University of London, although they serve other universities, and the diploma-granting bodies. A similar plan is adopted in dealing with the provincial universities, the hospitals in connexion with each being described; for though these may not be officially "schools" of the universities they supply an integral section of the teaching required by their candidates for medical graduation, and so for practical purposes may be looked on as constituent parts of the university system. The link is made all the closer by the presence of many of the same teachers both on the medical staff of a hospital and on the staff of lecturers of the university with which that hospital is connected.

Following the description of medical education at the universities, an account is given of the regulations of the various corporations granting diplomas for the practice of medicine. The schools serving these examining bodies are identical with those already described, with the addition of the principal colonial medical schools. The Student's Guide contains also an account of certain provincial hospitals which afford facilities for clinical instruction, and at which students may take out some part of their course, though they are not officially connected with any teaching centre.

Detailed information concerning all those medical schools and their hospitals naturally forms the bulk of the Students' Number of The Lancet; but we add to this an account of medical employment in the Naval, Military, and Indian Medical Services and in the Public Health Service. We give also the chief information useful to those desiring a diploma in public health or a special training in tropical medicine, together with an account of the facilities for post-graduate study, a branch of medical education the importance of which is rightly receiving increasing recognition

The Students' Number includes also a report upon the system of education in dental surgery, which has this year been considerably amplified

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM

POWERS AND DUTIES OF THE GENERAL MEDICAL COUNCIL

As there is apparently, even among members of the *medical profession, a great amount of ignorance as to the* powers and duties of the General Medical Council, we think it well to lay clearly before our readers what the General Medical Council is and also what it is not

Many of the false ideas on the subject are due to the use of the shortened title, "General Medical Council" The full title is, "General Council of Medical Education and Registration of the United Kingdom" This title is in accordance with the Medical Act of 1858, by which the General Medical Council was established under the Privy Council to enable persons requiring medical aid to distinguish qualified from unqualified practitioners The Council was thus instituted not primarily for the benefit of the medical profession but to ensure an efficient medical *service to the public It is obvious that by so doing the* [illegible] official sanction was given to [illegible] per guarantee was [illegible] medical education should always keep abreast of the scientific knowledge of the day The powers of the Council under which it fulfils these important functions fall under four heads It is first a registering body it registers the attainment by students of the degrees or other qualifications that legally entitle them to practise medicine This duty forms its chief service to the State, as a complete list of practitioners of legal standing, which is embodied in the *Medical Register*, is thus rendered available for the information of the public No person, even though qualifications have been obtained, is a legally qualified medical practitioner unless his name appears on the *Medical Register* For the purposes of medical education it also registers the entry by students upon their medical studies Secondly, it assures the public that the education of medical men is kept up to an efficient standpoint by maintaining at the proper pitch the standard of the various medical examinations Thirdly, it is a penal and disciplinary body, having power to remove from the *Register* any *practitioner adjudged guilty of conduct* "*infamous in a* professional respect' Here again it is the public interest that is first considered, although these powers are for the very material advantage of the medical profession The last duty of the Council is the codification of pharmaceutical remedies Registrars are appointed by the General Council and by the Branch Councils to keep registers of qualified persons They are bound by Section XIV of the Act to keep their registers correctly, a duty which, mainly owing to the apathy of members of the medical profession, can only be performed with difficulty

It is as well here to put down the advantages, such as they are, of being duly registered A duly registered practitioner may assume a name, title, addition, or description implying that he is registered under the Act and recognised by law A duly registered practitioner may sue in the courts of law for the recovery of charges for medical attendance or advice, or surgical attendance or advice, or for the supply of medicine, or for the performance of any operation—provided that he is not debarred from suing by being a Fellow or a Member of any corporation which objects to its Fellows or Members so suing If "actually practising" he may be exempted, if he so desire, from serving on juries He may also be exempted from serving sundry corporate and parochial offices, and from serving in the Militia Only [illegible] hold appointments in the navy, [illegible] and other institutions Only [illegible] ign a valid medical certificate [illegible] he Register debars a man from all the above mentioned privileges

The General Medical Council is in no way a medical protection society or a medical defence union It is not a professional union or a guild charged with looking after the interests of the medical profession after the manner of the old trades guilds, except in so far as it is concerned with the education of medical students It has no powers over *any member of the medical profession except to remove* the name of any offending member from the roll of the profession or Medical Register Practitioners may be removed from the Medical Register (1) if convicted of felony or misdemeanour in England, or in Ireland, or in Scotland of any crime or offence, and (2) on being adjudged by the General Medical Council to have been guilty of "*infamous conduct in a professional respect*"

The General Medical Council is primarily a body charged with looking after medical education, it is not concerned with medical politics in the ordinary sense, but it is generally felt to possess a mandate to interfere when the course of legislature may directly affect the status of the medical profession in relation to the public For example, the intervention of the General Medical Council during the debates upon the National Insurance Act was probably of considerable value The time of the Council is almost entirely taken up with considering educational and registration matters the latter including the penal cases of removal from the Register The Council at present consists of 38 members of whom, as will be seen by the annexed list, all but 11 are official representatives of some corporate body Five members are chosen by the Crown on the advice of the Privy Council, and six others are elected by the members of the medical profession as Direct Representatives

President of the General Council —*Sir Donald MacAlister*, K C B Members of the General Council —Dr Norman Moore, chosen by the Royal College of Physicians of London, Sir Henry Morr [illegible] of England, Mr George [illegible] London, Mr Arthur Th [illegible] Sir T Clifford Allbutt, K [illegible] George Hare Philipson [illegible] Frederick Taylor, Univer [illegible] Smith Victoria University of Manchester, Dr Robert Saundby, University of Birmingham, Dr Richard Caton, University of Liverpool, Dr Alfred George Barrs University of Leeds, Rutherfoord John Pye Smith, F R C S, University of Sheffield, Sir Isambard Owen University of Bristol, and Dr David Hepburn, University of Wales Dr William Russell chosen by the Royal College of Physicians of Edinburgh, Mr James William Beeman Hodsdon, F R C S Edin, Royal College of Surgeons of Edinburgh, David Neilson Knox, M B Faculty of Physicians and Surgeons of Glasgow, Sir Thomas Richard Fraser, M D, University of Edinburgh, Sir Donald MacAlister, K C B, M D, *University of Glasgow*, *Dr John* Theodore Cash University of Aberdeen, and Dr John Yule Mackay, University of St Andrews Sir John William Moore, chosen by the Royal College of Physicians of Ireland, Sir Arthur Gerald Chance, Royal College of Surgeons in Ireland, [illegible] Hall of Ireland [illegible], Sir Christoph [illegible] ersity of Irelan [illegible] Uni versity of [illegible] the advice of his Privy Council Mr Charles Sissmore Tomes, F R C S, Dr Arthur Newsholme, Sir Francis Henry Champneys Bart, *Dr John Christie McVail, and Dr* James Little Elected as Direct Representatives Dr Langley Browne, Dr H A Latimer, Dr J A MacDonald Mr Thomas Jenner Verrall, Dr Norman Walker, and Dr Leonard Kidd Treasurers *of the General Council* Mr Charles Sissmore Tomes and Sir Henry Morris, Bart

THE EDUCATIONAL CURRICULUM

Professional Education —The course of professional study after registration occupies at least five years The Final Examination in Medicine Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study

Registration and Preliminary Examination of Medical Students —The following are the General Medical Council's Regulations in reference to the registration of students in medicine —

Every medical student should be registered in the manner prescribed by the General Medical Council The registration of medical students is placed under the charge of the branch registrars. Every person desirous of being registered as a medical student should apply to the Branch Registrar of the division of the United Kingdom in which he is residing; and should produce or forward to the Branch Registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years, and has commenced medical study at an institution approved by the Council. The branch registrar shall enter the applicant's name and other particulars in the Students' Register and shall give him a certificate of such registration. Each of the branch registrars shall supply to the several licensing bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. The commencement of the course of professional study recognised by any of the qualifying bodies should not be reckoned as dating earlier than 15 days before the date of registration. In addition to the universities and schools of medicine there are many institutions where medical study may be commenced. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

The Preliminary Examination in General Education, required to be passed previously to registration as a medical student, is as follows:—

1. English language, including grammar and composition. Paraphrasing; questions on British history and geography. 2. Latin, including grammar, translation from unprescribed Latin books, and translation of English passages into Latin. 3. Mathematics, comprising (*a*) arithmetic, (*b*) algebra, including easy quadratic equations, and (*c*) geometry, the subject matter of Euclid, Books I., II., and III., with simple deductions. 4. One of the following subjects: (*a*) Greek, (*b*) a modern language.

In some cases also the Council will not accept certificates without endorsement that all the required subjects are included. For a syllabus or for old examination papers application should be made to the Examining Bodies who can give details as to the requirements in regard to their own examinations.

A degree in Arts of any university of the United Kingdom or of the colonies or any other specially recognised university, or a certificate of having passed the final examination for a degree in Arts or Science of any university in the United Kingdom is considered a sufficient testimonial of proficiency.

Norman C. King, Registrar of the General Council and of the Branch Council for England, 299, Oxford-street, London, W.—James Robertson, Registrar of the Branch Council for Scotland, 54, George-square, Edinburgh.—Richard J. E. Roe, Registrar of the Branch Council for Ireland, 35, Dawson-street, Dublin. All communications should be addressed to "The Registrar" and not by name.

THE EXAMINING BODIES.

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student.

In all cases it must be certified that all the required subjects have been passed at not more than two examinations.

Universities in the United Kingdom.

University of Oxford.—[1] [2] Junior Local Examinations, if passed before Dec. 31st, 1913. (Certificate to be endorsed as fulfilling the Council's requirements.) [1] Senior Local Examinations. (Certificates to be endorsed as fulfilling the Council's requirements.) Higher Local Examinations. Responsions. (Certificate to be supplemented by others showing that the required mathematical subjects have been passed. Moderations.

University of Cambridge.—[1] [3] Junior Local Examinations, if passed before Dec. 31st, 1913. (Certificate to be endorsed as fulfilling the Council's requirements.) [1] Senior Local Examinations. (Certificates to be endorsed as fulfilling the Council's requirements.) Higher Local Examinations. Previous Examination. General Examination.

Oxford and Cambridge Schools' Examination Board.—[1] Higher Certificate Examination. [4] The School (or Leaving) Certificate Examination.

University of Durham.—Matriculation Examination of the Faculties of Medicine, Science, Letters, and Music.

University of London.—Matriculation Examination. Senior School Examination.

Victoria University of Manchester, University of Liverpool, University of Leeds, and University of Sheffield, Joint Matriculation Board of.—Matriculation Examination. Senior School Certificate (to include (*a*) English Language and Literature; (*b*) Latin; (*c*) Mathematics; (*d*) Greek or a Modern Language; and (*e*) and (*f*) any two other subjects as set out in the *Regulations* of the Board).

University of Birmingham.—Matriculation Examination, Senior School-leaving Certificate.

University of Bristol.—Matriculation Examination.

University of Wales.—Matriculation Examination.

Universities of Scotland.—Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Medicine and Surgery. Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Arts or Science.

University of St. Andrews.—Final Examination for the diploma of L.L.A.

University of Dublin.—(*a*) Junior Freshman Term Examination (exclusive of Trigonometry). (*b*) Special Preliminary Examination to be held in March, the standard and subjects of which shall be those of a Junior Freshman Examination (exclusive of Trigonometry). (*c*) Junior Exhibition Examination on obtaining marks of sufficient merit in the subjects of (*a*) or (*b*). (*d*) Examinations for the first, second, third, or fourth year in Arts. (Certificate to be signed in the approved form by the Medical Registrar of the University.)

Queen's University of Belfast.—Matriculation Examination.

National University of Ireland.—Matriculation Examination.

Government Examinations held in the United Kingdom.

Scotch Education Department.—Leaving Certificate Examinations: passes in Lower Grade. Leaving Certificate Examinations. Intermediate Certificate.

Intermediate Education Board of Ireland.—Middle Grade Examination, with Honours in three subjects. Senior Grade Examination.

Central Welsh Board.—Senior Certificate Examinations.

Examinations by Chartered Bodies held in the United Kingdom.

College of Preceptors.—Examinations for First Class Certificate. Preliminary Examination for Medical Students.

Educational Institute of Scotland.—Preliminary Medical Examination.

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary Examination.

Indian, Colonial, and Foreign Universities and Colleges.

Every Certificate from Indian, Colonial, and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it, must include all the subjects required by the General Medical Council, and must state that all the subjects of Examination have been passed in at not more than two examinations; copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classical Oriental Language may be accepted instead of an Examination in Latin. The German Abiturienten-Examen of the Gymnasia and Real-gymnasia and the examinations entitling to the French diplomas of Bachelier ès Lettres and Bachelier ès Sciences are recognised by the General Medical Council.

The remainder of the curriculum, though all under the supervision of the Council, is in detail in the hands of the various degree- and diploma-granting bodies whose representatives are members of the General Medical Council. In the next pages we give the regulations of the various examining bodies, but it must always be remembered that the examinations are under the supervision of the General Medical Council who visit the various centres in turn and closely inspect the procedure.

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[1] A special leaflet showing the Council's requirements will be sent on application.

[2] The subjects must be passed by the Candidate at one examination.

[3] Ibid.

[4] For particulars see Regulations issued by the Board.

THE
MEDICAL EXAMINING BODIES
AND
SCHOOLS OF THE UNITED KINGDOM

A GUIDE TO THE FACILITIES FOR OBTAINING THE VARIOUS
MEDICAL DEGREES AND OTHER QUALIFICATIONS
AVAILABLE IN THE BRITISH ISLANDS[1]

I.—ENGLAND AND WALES

THE UNIVERSITIES

UNIVERSITY OF OXFORD

THERE are two degrees in Medicine, *B.M. and D.M.*, two degrees in Surgery, *B.Ch. and M.Ch.*, and two diplomas, *Public Health* and *Ophthalmology*.

Graduates in Arts (B.A. or M.A.) are alone eligible for the degrees. The most convenient course for the B.A. degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology. In order to obtain the degrees of B.M. and B.Ch. the following examinations must be passed:—1. Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology and Botany. 2. Professional: (*a*) First Examination. Subjects— Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy. (*b*) Second Examination. Subjects— [illegible] Medicine [illegible] The [illegible] —Pre [illegible] ember [illegible] March, Botany, March and June; Professional (First and Second B.M.), June and December.

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations have been completed. Anatomy and Physiology are to be passed together, and Organic Chemistry may be taken before or after these have been passed.

The Second Examination may be passed after the completion of the first, but Pathology, Hygiene, and Materia Medica and Pharmacology may be taken before or with the remaining subjects. Before admission to the Second Examination candidates must present certificates of attendance on a course of laboratory instruction in Practical Pathology and Bacteriology and of having acted as post-mortem clerk for three months, surgical dresser for six months, and clinical clerk for six months. Also they must produce certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours, of proficiency in the practice of Vaccination and Anæsthetics, and of having attended a course of Practical Pharmacology. Also in respect of the First Examination candidates must present certificates showing that they have dissected the whole body once and have attended courses of laboratory instruction in Practical Histology and Practical Physiology.

The degree of D.M. is granted to Bachelors of Medicine of the University provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M., whose [illegible] dissertation to be read in public. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty-seventh term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed the M.Ch. examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second B.M. Examination.

Diploma in Ophthalmology.—There is an examination once in each year in the Theory and Practice of Ophthalmology for the purpose of granting certificates of proficiency therein, styled Diplomas in Ophthalmology. The examination is under the supervision of the Board of the Faculty of Medicine, which has power to make regulations as to the subjects of the examination, the time at which the examination is held, and the conditions of admission. No candidate is admitted to the examination for the diploma who has not pursued at Oxford a course of study in Ophthalmology approved by the Board of the Faculty of Medicine, and extending over a period of at least three months. The fee for admission to the examination is £15, unless the candidate is a graduate of the University, in which case it is £10 only.

Public Health.—See page 686.

Travelling Fellowship, Scholarships, and Prizes.—A Radcliffe Travelling Fellowship is awarded annually after an examination held in February. It is tenable for three years and is of the annual value of £200. The examination is in Physiology, Pathology, and Hygiene, and is partly practical. Candidates must be graduates in Medicine of the University. The holder must travel abroad for the purpose of medical study. Application should be made to the Radcliffe Examiners, Radcliffe Library, University Museum. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years standing for an original research in some Biological subject, including Physiology or Pathology. The Radcliffe Prize, founded by University College (1907), is of the value of £50 and is awarded biennially for research in some branch of medical science. The prize will be awarded in 1915. Candidates must send in their memoirs to the University Registry on or before Dec. 1st, 1914. The C. Theodore Williams Scholarships of the value of £50 each are awarded annually in the subjects of Anatomy, Physiology, and Pathology. The Scholarships in Science which are offered by several Colleges are open to those who intend to pursue Medicine. The value of these scholarships is usually £80 a year for four years.

More detailed information may be obtained from the University Calendar, from the Examination Statutes, 1902, from the Student's Handbook to the University (all of which are published by the Clarendon Press), from the Regius Professor of Medicine, and from the Professors in the several [illegible] of medical science.

Profe[illegible] M.A. Botany (Sherar[illegible]) (Waynflete): W. H. Perkin, M.A., D.Sc. Comparative Anatomy (Linacre): G. C. Bourne, D.Sc. Human Anatomy: A. Thomson, M.A. Lecturer in Applied Anatomy: A. P. Dodds Parker, B.M. Medicine (Regius): Sir W. Osler, Bart., D.M. Litchfield Lecturer: Wm. Collier, M.D. Surgery, Litchfield Lecturer: R. M. A. Whitelocke, M.D., F.R.C.S. Natural Philosophy (Sedleian): A. E. H. Love, D.Sc. Physics (Wykeham): J. S. E. Townsend, M.A. Physiology (Waynflete): Vacant. Reader: J. S. Haldane, M.A. Zoology: E. B. Poulton, M.A., D.Sc. Pathology: G. Dreyer, M.D. Lecturer: E. W. A. Walker, D.M. Pharmacology (Reader): James Gunn, M.A., M.D.

In addition to the University lectures and classes the several Colleges provide their undergraduates with tuition for all examinations up to the B.A. degree.

In the Radcliffe Infirmary and County Hospital clinical instruction is given by the Regius Professor of Medicine, the Litchfield Lecturers in Medicine and Surgery, and the other physicians and surgeons. Instruction is also given in post-mortem work in connexion with the courses in Pathology.

UNIVERSITY OF OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Courses of instruction are given in connexion with the Oxford University Medical School. These include (1) a course in Practical Medicine by the Regius Professor of Medicine; (2) Clinical lectures by the Litchfield Lecturers in Medicine and Surgery; and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis and Surgical Manipulation. (4) Pathological demonstrations and instruction in post-mortem work are given by the Assistant Pathologist. Practical Pharmacy is taught in the Radcliffe Dispensary. Opportunities are offered to students who wish to act as surgical dressers and cl[illegible]. The Hospital contains 155 beds. Honorary Physician: Dr. F. B. G[illegible]. Honorary Surgeon: Mr. [illegible] Whitel[illegible]. Acting Consulting Physician: Professor Sir William Osler, Bart. Acting Staff.—Honorary

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[1] *Tropical Medicine and Hygiene.*—Information on these subjects is given on p. 686 under the section on Public Health.

Physicians: Dr. W. Tyrrell Brooks, Dr. W. Collier, and Dr. E. Mallam. Honorary Assistant Physician and Medical Registrar: Dr. A. Waters. Electro-Therapeutic Physician: Dr. W. J. Turrell. Honorary Surgeons: Mr. Horatio P. Symonds, Mr. R. H. A. Whitelocke, and Mr. A. P. Dodds-Parker. Honorary Assistant Surgeon and Surgical Registrar: Mr. E. C. Bevers. Consulting Ophthalmic Surgeon: Mr. P. E. H. Adams. Honorary Consulting Pathologist: Professor Georges Dreyer. Honorary Assistant Pathologist: Dr. A. G. Gibson. Consulting Dental Surgeon: Mr. E. A. Bevers. Honorary Radiographer: Mr. R. H. Sankey. House Physician: Dr. E. H. Udell. House Surgeon: Mr. H. T. Evans. Junior House Surgeon: Mr. D. McDonald.

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms (three years) by residence in the University. He must pass the Previous Examination in Classics, Mathematics, &c., which may, and should if possible, be done before he comes into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield, or by being graduates of other Universities in the United Kingdom. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts, either continuing mathematical and classical study and passing the ordinary examinations for B.A. or going out in one of the Honour Triposes. The Natural Sciences Tripos is taken most frequently, as some of the subjects are practically the same as those for the first and second M.B.

For the degree of *Bachelor of Medicine* (*M.B.*) five years of medical study are required. This time may be spent in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed, say, the examination for the Natural Sciences Tripos and the first and second examinations for M.B. Hospital practice and many of the requisite lectures may be attended in Cambridge, and a certain number of students remain to attend lectures and hospital practice until they have passed the second part of the second examination for M.B. The laboratories for Pathology, Bacteriology, and Pharmacology are well equipped. Addenbrooke's Hospital makes provision for the necessary clinical training.

There are three examinations for M.B. The *first* includes Chemistry and other branches of Physics and Elementary Biology. These parts may be taken together or separately. The *second* is divided into two parts—viz., (1) Human Anatomy and Physiology; and (2) Pharmacology and General Pathology. The *third* is also divided into two parts: (1) Principles and Practice of Surgery (including Special Pathology and Midwifery and Diseases Peculiar to Women); and (2) Principles and Practice of Physic (including Diseases of Children, Mental Diseases, Medical Jurisprudence), Pathology (including Hygiene and Preventive Medicine), and Pharmacology (including Therapeutics and Toxicology). The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

Candidates who have passed both parts of the third M.B. examination are admitted to the registrable degree of *Bachelor of Surgery* (*B.C.*) without separate examination and without keeping an Act.

The degree of *Doctor of Medicine* (*M.D.*) may be taken three years after that of M.B. or four years after that of M.A. An Act has to be kept, consisting of an original Thesis sustained in the Public Schools with *vivâ voce* examination; and a short extempore essay has to be written on a topic taken from the general subject of his thesis, whether it be Physiology, Pathology, Pharmacology, the Practice of Medicine, State Medicine, or the History of Medicine.

For the degree of *Master of Surgery* (*M.C.*) the candidate must have passed all the examinations for B.C., or, if he is an M.A., have obtained some other registrable qualification in surgery. He is required either (1) to pass an examination in Principles and Practice of Surgery, Surgical Anatomy and Surgical Operations, and Pathology, and to write an extempore essay on a Surgical Subject; or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery. Before he can be admitted to the examination two years, at least, must have elapsed from the time when he completed all required for the degree of B.C. Before submitting original contributions he must have been qualified at least three years.

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry, Physics, Biology, Pharmacology, and General Pathology may be obtained upon sending a stamped directed envelope to the Registrary, the Registry, Cambridge.

The Professors, Readers, and Lecturers in the various subjects are as follows. Professors—Anatomy: A. Macalister, M.D. Biology (Quick): G. H. F. Nuttall, Sc.D. Botany: A. C. Seward, M A. Chemistry: W. J. Pope, M.A. Natural Philosophy (Jacksonian): Sir James Dewar, M.A. Pathology: G. Sims Woodhead, M.A. Physic (Regius): Sir T. Clifford Allbutt, M.D. Physiology: J. N. Langley, Sc.D. Surgery: F. H. Marsh, Sc.D. Therapeutics (Downing Professor of Medicine): J. B. Bradbury, M.D. Zoology, &c.: J. Stanley Gardiner, M.A. Readers—Botany: F. F. Blackman, M.A. Chemical Physiology: F. G. Hopkins, M.A. Zoology: A. E. Shipley, Sc.D. Lecturers—Bacteriology: G. S. Graham-Smith, M.D., and Louis Cobbett, M.D. Botany: A. G. Tansley, M.A. Chemistry: W. J. Sell, Sc.D., and H. J. H. Fenton, Sc.D. Organic Chemistry: S. Ruhemann, M.A. Chemistry and Physics as Applied to Hygiene: J. E. Purves, M.A. Advanced Morphology of Vertebrates: H. Gadow, M.A. Advanced Morphology of Invertebrates: A. E. Shipley, Sc.D. Pathology (Huddersfield): T. S. P. Strangeways, M.A. Physics: G. F. C. Searle, Sc.D., and C. T. R. Wilson, M.A. Pharmacology: W. E. Dixon, M.A. Advanced Physiology: W. H. Gaskell, M.D., and L. E. Shore, M.D. Physiology: H. K. Anderson, M.D. Physiological and Experimental Psychology: W. H. R. Rivers, M.A. Medical Jurisprudence: B. Anningson, M.D. Medicine: L. Humphry, M.D. Physiological Anthropology: W. L. H. Duckworth, M.D., Sc.D.

University Prize in Medicine.—There is only one University Prize in Medicine. The Raymond Horton Smith Prize (value £19) is awarded to that candidate for the degree of M.D. who presents the best thesis for the degree during the academical year, provided that he has taken honours in a tripos examination. Medical Studies are endowed by the numerous Natural Science scholarships at the various colleges, information about which can be obtained from the respective Deans.

ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge University Medical School, are given at this hospital twice a week during the academical year; and practical instruction in Medicine and Surgery is given in the wards and out-patients' rooms by the physicians and surgeons daily during the term time and vacations. The fee for pupilship is 3 guineas a term. Physicians: Professor Sir Clifford Allbutt, Professor Bradbury, and Dr. L. Humphry. Assistant Physicians: Dr. E. Lloyd Jones and Dr. J. Aldren Wright. Surgeons: Professor F. Howard Marsh, Mr. G. E. Wherry, Mr. F. Deighton, and Dr. Griffiths. Assistant Surgeon: Mr. Arthur Cooke. All communications by students should be made to Dr. J. Aldren Wright.

UNIVERSITY OF LONDON.

The University of London was established by Royal Charter in 1836 as an examining and degree conferring body with affiliated colleges but no direct teaching functions. In 1900 it was reconstituted under the Act of Parliament 1898 and became a teaching as well as an examining body. Many schools already existing became constituent colleges, including all the metropolitan medical schools. Teachers were also appointed in special subjects to give lectures at the University. The question of the centralisation of preliminary scientific studies has for some years occupied the very serious attention of the University and its constituent schools, but has only partially been carried into effect at present The whole subject of medical education in London has lately been under discussion, and far reaching changes are proposed in the Report of the Royal Commission on University Education in London which was issued this year The Commissioners' proposals have already received support and opposition from those who hold different views on the University problem in London, but there will probably be no great delay in putting some of these proposals into working order, as a committee has been appointed this month with that end in view

The medical degrees awarded by the University are those of M D, M S, and M B, B S, the two latter being now

, whereas formerly the

nd the B S was taken

The medical degrees of the University of London are granted to both internal and external students, the former being students of the constituent schools and colleges of the University

Teaching Staff.—The teaching staff of the University is organised under two heads 1 Appointed teachers—i e, such as are appointed by, and are paid out of the funds of, the University 2 Recognised teachers—i e, those who have been appointed and are paid by the several schools of the University and other institutions at which instruction is given under the auspices of the University, and who have been recognised by the Senate as conducting work of University standard Courses by non-recognised teachers may also be approved in schools of the University Thus in the Faculty of Medicine there are at present nine appointed teachers, and there are 405 recognised teachers belonging to the various metropolitan medical schools There are 235 *recognised teachers in the Faculty of Science The lecturers* in the Medical Sciences and the professors in the Faculties of Medicine in University College, London, and King's College, London, will be found enumerated under their respective medical schools

Internal and External Students—Matriculated students of the University may be either internal or external Internal students of the University are students who have matriculated at the University and who are pursuing a course of study approved by the University, either (*a*) under the direct control of the University or a committee appointed thereby; or (*b*) under one or more of the appointed or recognised teachers of the University Centres for preliminary and intermediate medical studies have been established by the University at University and King's Colleges Internal students must pursue their studies at one of the above centres, or at one of the medical schools connected with the University These are University College Hospital, King's College Hospital, St Bartholomew's Hospital, the London Hospital, Guy's Hospital, St Thomas's Hospital, St George's Hospital, the Middlesex Hospital, St Mary's Hospital, Charing Cross Hospital, Westminster Hospital, and the London (Royal Free Hospital) School of Medicine for Women The London School of Tropical Medicine and the Lister Institute of Preventive Medicine are also recognised as schools of the University in special departments External students are all other matriculated students, and may pursue their studies at other universities and medical schools, presenting themselves for examination at the University of London.

The Matriculation Examination—Students before being admitted to the University must either (1) have passed the Matriculation or the School Examination (Matriculation or Higher Standard), or (2) have been exempted therefrom under Statute 116 of the University which recognises certain other examinations in its lieu Such exemption is granted to graduates of British and certain Colonial Universities, and

Cambridge Schools Examination Board, the Scotch school-leaving certificate, the senior grade certificate of the Intermediate Examination Board for Ireland, the matriculation *certificate of the Joint Board of the Northern Universities*, and to students who have passed their previous examination at Cambridge These exemptions allow of a wide choice of examinations to students who intend to take the University course The examinations for matriculation take place three times in each year—namely, on Sept. 15th (if that day be a Monday, or if not, on the Monday next preceding the 15th), on the second Monday in January, and on the second Monday in June (or July, as may be hereafter determined) The examinations in January and June (or July), but not that in September, may be held not only at the University of London, but also, under special arrangement, in other parts of the United Kingdom or in the Colonies (Neither Botany nor Drawing can be chosen for subjects in the Colonies) It is noteworthy that the September examination affords an opportunity for prospective medical students who may have failed at the midsummer examination to pass the Matriculation in time to enter upon their medical course in October Students who pass the January Matriculation are able to enter for the First Examination for Medical Degrees in the following July under certain conditions in the case of internal students Every candidate must, on or before August 20th for the September examination, on or before Nov 25th for the January examination, and on or before April 25th for the June (or July) examination, apply by postcard to the Principal for a form of entry, of which the first in order must be returned 14 days before the commencement of the September examination, the second on or before Dec 1st, and the third on or before May 1st, accompanied in the same cover by a certificate showing that the candidate has completed his sixteenth year, and by his fee for the examination A certificate from the Registrar General in London or from the superintendent registrar of the district, or a certified copy of the baptismal register, or a declaration of the candidate's age, made before a magistrate by his parent or guardian, or by the candidate if of full age, will be accepted As candidates cannot be *admitted after the list is closed, any candidate* who may not have received a form of entry within a week after applying for it should communicate immediately with the Principal, stating the exact date of his application and the place where it was posted Every candidate must pay a fee of £2 If he withdraws his name before the last day of entry it shall be returned to him If he fails to present himself he shall be allowed to enter for a subsequent Matriculation within eight months on payment of £1 If he retires after the commencement of the examination or fails to pass it the full fee of £2 shall be payable on every re entry Candidates must show a competent knowledge of each of the following five subjects, according to the details specified 1 English—Composition, Précis writing, salient facts in English History and Geography A subject for an essay, to be chosen by candidates, to test power of expression, thought, and arrangement and general knowledge 2 Elementary Mathematics —Arithmetic, Algebra (including quadratic equations and graphs of simple functions), and the subjects of Euclid (Books I to IV) 3 Latin, or Elementary Mechanics, or Elementary Physics (Heat, Light, and Sound), or Elementary Chemistry, or Elementary Botany 4 and 5 Two of the following subjects, neither of which has been taken under Section 3 (if Latin be not taken, one of the other subjects must be another language from the list) Latin, Greek, French, German, Ancient History, Modern History, Logic, Physical and General Geography, Geometrical and Mechanical Drawing, Mathematics (more advanced), Elementary Mechanics, Elementary Chemistry, Elementary Physics (Heat, Light, and Sound), Elementary Physics (Electricity and Magnetism), and Botany One of the subjects may be some other language than Latin, Greek, French, and German, subject to the approval of the Matriculation Board, provided that six months' notice is given before the beginning of the Matriculation examination for which they enter and an additional fee paid Additional subjects, of which, however, candidates must give notice two months previous to the examination, are Arabic, Sanskrit, Spanish, Portuguese, Italian, Hebrew, Chinese, Modern Dutch, and Zoology.

Provincial Examinations for Matriculation—These examinations are appointed by the Senate from time to time upon the application of any city, institution, or college desiring to be named as a local centre for one or more examinations, and are carried on simultaneously with the examinations *in London under the supervision of sub examiners* also appointed by the Senate Candidates wishing to be examined at any provincial centre must give notice upon their forms of entry to the Principal of the University, who will then make all necessary arrangements. Besides the

Staff.—Consulting Physicians: Sir William S. Church, Bart., K.C.B., Dr. Hensley, Sir Lauder Brunton, Bart., F.R.S., Sir Dyce Duckworth, Bart., Dr. Norman Moore, Dr. S. West, and Dr. Ormerod. Consulting Physician Accoucheur: Sir Francis Champneys, Bart. Consulting Surgeons: Professor Marsh, Mr. Harrison Cripps, Mr. Lockwood, and Mr. Bruce Clarke. Consulting Aural Surgeon: Mr. Cumberbatch. Consulting Medical Officer to the Electrical Department: Dr. Lewis Jones. Physicians: Dr. Herringham, Dr. Tooth, C.M.G., Dr. Garrod, F.R.S., Dr. Calvert, and Dr. Morley Fletcher. Surgeons: Sir Anthony Bowlby, C.M.G., Mr. D'Arcy Power, Mr. Waring, Mr. McAdam Eccles, and Mr. Bailey. Physicians with charge of Out-patients: Dr. Drysdale and Dr. Horton-Smith Hartley, C.V.O. Assistant Physicians: Dr. Horder, Dr. Langdon Brown, and Dr. Thursfield. Surgeons with charge of Out-patients: Mr. Rawling and Mr. Gask. Assistant Surgeons: Mr. Gordon Watson, Mr. Harold Wilson, and Mr. Girling Ball. Physician Accoucheur: Dr. Griffith. Physician Accoucheur with charge of Out-patients: Dr. Williamson. Assistant Physician Accoucheur: Dr. Barris. Ophthalmic Surgeons: Mr. Jessop and Mr. Holmes Spicer. Surgeon for Diseases of the Throat and Nose: Mr. Harmer. Assistant Surgeon for Diseases of the Throat and Nose: Mr. Rose. Aural Surgeon: Mr. Ernest West. Assistant Aural Surgeon: Mr. Sydney Scott. Dental Surgeons: Mr. Ackland and Dr. Austin. Assistant Dental Surgeons: Mr. F. Coleman and Mr. Atkinson Fairbank. Orthopædic Surgeon: Mr. Elmslie. Physicians for Diseases of Children: Dr. Fletcher and Dr. Thursfield. Physician for Diseases of the Skin: Dr. Adamson. Medical Officer in charge of Electrical Department: Dr. Cumberbatch. Medical Officer to the X Ray Department: Dr. Walsham. Pathologist: Professor Andrewes. Assistant Pathologist: Dr. Gordon. Administrators of Anæsthetics: Mr. Gill and Mr. Cross. Assistant Administrators of Anæsthetics: Mr. Boyle and Mr. Trewby. Medical Registrars: Dr. Hinds Howell and Dr. Gow. Surgical Registrars: Mr. Blakeway and Mr. Roberts. Casualty Physicians: Dr. Stansfeld and Dr. Hamill.

Lecturers and Demonstrators.—Medicine: Dr. Norman Moore (Emeritus Lecturer), the Physicians, and Assistant Physicians. Clinical Medicine: Dr. Herringham, Dr. Tooth, C.M.G., Dr. Garrod, F.R.S., Dr. Calvert, and Dr. Morley Fletcher. Practical Medicine: Dr. Langdon Brown and Dr. H. Thursfield. Surgery: The Surgeons and Assistant Surgeons. Clinical Surgery: Sir Anthony Bowlby, C.M.G., Mr. D'Arcy Power, Mr. Waring, Mr. McAdam Eccles, and Mr. Bailey. Practical Surgery: Mr. Harold Wilson and Mr. Girling Ball. Operative Surgery: Mr. Rawling, Mr. Gask, and Mr. Gordon Watson. Midwifery and Diseases of Women: Dr. Griffith, Dr. Williamson, and Dr. Barris. Practical Midwifery: Dr. M. Donaldson. Pathology: Professor Andrewes and Dr. Gordon. Chemical Pathology: Dr. Garrod, F.R S., and Mr. Wallis. Morbid Anatomy and Post Mortems: Dr. Hinds Howell, Dr. A. E. Gow, Mr. Blakeway, and Mr. Roberts. Practical Pathology: Dr. Stansfeld, Mr. Roberts, Dr. Stott, Mr. Vick, and Mr. Davis. Ophthalmic Medicine and Surgery: Mr. Jessop and Mr. Holmes Spicer. Ophthalmoscopic Demonstrations: Mr. Holmes Spicer. Diseases of the Ear: Mr. Ernest West and Mr. Sydney Scott. Diseases of the Throat and Nose: Mr. Harmer and Mr. Rose. Orthopædic Surgery: Mr. Elmslie. Diseases of the Skin: Dr. Adamson. Diseases of Children: Dr. Morley Fletcher and Dr. Thursfield. Medical Electricity: Dr. E. P. Cumberbatch. X Ray Practice: Dr. Walsham. Mental Diseases and Insanity: Dr. Claye Shaw (Emeritus Lecturer) and Dr. Robert Jones. Dental Surgery: Mr. R. C. Ackland and Dr. Austin. Anæsthetics: Mr. R. Gill, Mr. Cross, Mr. Boyle, and Mr. Trewby. Forensic Medicine: Dr R. A. Lyster. Descriptive and Surgical Anatomy: Dr. Macphail. Practical Anatomy: Dr. Macphail, Mr. Stanley, Mr. Grange, and Mr. Moreton. General Anatomy and Physiology: Dr. Edkins. Practical Physiology: Dr. Edkins, Mr. Trevan, and Dr. Lukis. Materia Medica, Pharmacology, and Therapeutics: Dr. Hamill. Biology and Comparative Anatomy: Dr. Shore. Practical Biology: Dr. Shore and Mr. Cunnington. Chemistry: Dr. Hurtley. Practical Chemistry: Dr. Hurtley and Mr. Cahen. Physics: Mr. Womack. Practical Physics: Mr. Womack and Mr. Lloyd Hopwood. Public Health: Sir George Newman. Sanitary Law: Dr. Lyster. Museum Curator: Professor Andrewes. Junior Curator: Mr. Armstrong. Dean of the Medical School: Dr. Shore. Warden of the College: Mr. Girling Ball.

Scholarships given in aid of Medical Study.—At this school various Scholarships, prizes, &c., are given, none of those in the following list having a less value than £10. There are also other prizes and medals on a lower scale of value. For five of the Scholarships and the Exhibition—namely, (*a*), (*b*), (*c*), three Entrance Scholarships of the respective values of £75, £75, and £150; (*d*) Entrance Scholarship in Arts, £100; (*e*) Jeaffreson Exhibition, £50; and (*f*) Shuter Scholarship, £50—a full or University course at St Bartholomew's Hospital is required. The awards of (*a*), (*b*), and (*c*) are made after examination in selections from the subjects of Chemistry, Physics, Zoology, Botany, Physiology, and Anatomy; (*d*) and (*e*) are awarded after examination in Latin, Mathematics, and Greek or French or German; (*f*) is awarded after competitive examination among Cambridge Graduates in Anatomy and Physiology. For the remaining Scholarships and prizes study at St. Bartholomew's Hospital is required. These remaining Scholarships and prizes, with the money value and the subjects of examination, are as follows:—Four Junior Scholarships: (*g*) No. 1, £30 Anatomy and Physiology; (*h*) No. 2, £20, Anatomy and Physiology; (*i*) No. 3, £25, Chemistry, Physics, and Biology; (*j*) No. 4, £15, Chemistry, Physics, and Biology; (*k*) Senior Scholarship, £50, Anatomy, Physiology, and Chemistry; (*l*) Kirkes Scholarship, £30 and medal, Clinical Medicine; (*m*) and (*n*) two Brackenbury Scholarships, £39 each, one in Medicine and one in Surgery; (*o*) Sir G. Burrow's Prize, £10, Pathology; (*p*) Skynner Prize, 13 guineas, Regional and Morbid Anatomy; (*q*) Matthews Duncan Medal and Prize, £20, Midwifery and Gynæcology; (*r*) Luther Holden Research Scholarship in Surgery, awarded by election, £105; and (*s*) Lawrence Research Scholarship and gold medal in Pathology, awarded by election, £115.

CHARING CROSS HOSPITAL.—This School, with its Hospital, is situated in the very centre of London, and is easily accessible from all parts. It is within a few minutes' walk of the University of London Laboratories at King's College, and provides for full instruction in all subjects of the medical curriculum. Its courses of instruction are specially designed to meet the requirements for the University of London degrees, the diplomas of the Royal Colleges, and the final studies of other universities. The lectures are given at hours to suit both general and dental students. The Hospital, with its Convalescent Home at Limpsfield, contains 200 beds. Over 2000 cases pass through its wards each year, and some 24,000 out-patients and casualties are treated. There are special departments for Mental Diseases, Midwifery, Diseases of Women, of Children, of the Skin, Eye, Ear, Throat, Nose, and Teeth, for Orthopædic Cases, X Ray work, and for Electrical Examination and Treatment.

Appointments.—In the Medical School Demonstratorships and Assistant Demonstratorships are open to students of the School. Medical, Surgical, and Obstetric Registrars to the Hospital are appointed annually. Six House Physicians, six House Surgeons, and two Resident Obstetric Officers are appointed each year after competitive examination. They are provided with board and residence in the Hospital. Clinical Clerks and Dressers are appointed in all the general and special departments of the Hospital, and arrangements are also made for students who have not entered for the entire medical curriculum to hold these posts. Every student holds in turn the post of Pathological Assistant and assists at the necropsies, and on the completion of his clinical appointments takes up the duty for three months of Pathological Clerk in the Clinical Laboratory under the immediate supervision of the Bacteriologist. The above appointments are open without any additional fee.

Recent Developments.—The School, alike in the interest- of educational efficiency, and in accordance with one of th chief recommendations of the University of London—o which it is a constituent college—has now an arrangemen whereby its students can carry out their work in the primary and intermediate portions of their studies in the laboratorie of the University of London (King's College), situated within a few minutes' walk of the hospital. The arrangement has proved to be a most successful one. It enables it students to get the best university education from a larg professorial and teaching staff in their earlier studies whi still allowing them to take advantage of their own school fo social and collegiate purposes As a further result of thi reorganisation the school has now exceptionally large an commodious laboratories for the Final studies. A larg Laboratory, capable of accommodating up to 100 student is available for general pathological work, demonstrations and research, under the immediate charge of the Lecturer and Assistant Lecturer on Pathology Systematic demonstrations, covering the whole range of Pathology, are arranged daily throughout each session between 10 A M and 5 P M Good departments are also available for other final subjects of Bacteriology, Chemical Pathology, Materia Medica, Toxicology, Public Health, and Operative Surgery, and also for Research Work by Post graduates

Public Health Laboratories —A further important development has recently been effected in connexion with Public Health and Bacteriology The School has adapted an exceptionally fine series of its laboratories for purposes of these studies and the University of London King s College, have taken these over as their ' University Laboratories of Public Health and Bacteriology," and have transferred to them their full professorial and teaching staff The fullest course of instruction for the Diploma of Public Health is given in these laboratories

The *Museum* contains over 4000 specimens, and has recently received a notable collection of over 700 gynæcological specimens, ' The Cuthbert Lockyer Collection,' from one of the members of its hospital and school staff

Library —The Library contains the latest editions of the usual text books and the chief medical periodicals The Students' Club Union includes reading and smoking rooms, cloak room, refreshment room &c Extensive alterations have recently been made in these, adding greatly to the social comfort of the students

Fees —Sessional payments of 17 guineas for the Winter Session and 8 guineas for the Summer Session for London University and other University students and 15 guineas and 7 guineas respectively for Conjoint Board students, with an entrance fee of 10 guineas , or a total composition fee for five and a half years tuition of 120 guineas in the case of London University students and of 110 guineas for five years' tuition for the Conjoint Board students Special facilities are offered for students and post graduates desiring to take up particular classes or work in the wards and special departments of the hospital for longer or shorter periods The fees are those of the classes attended or in accordance with the period and character of hospital attendance desired Students and graduates entering for these shorter courses are eligible for the various resident and assistant appointments in the hospital The above fees are inclusive of the full course of instruction given in the School and in the University Laboratories

All information regarding scholarships prizes, &c , or any further information desired may be had of the Dean (Dr William Hunter F R C P) The Medical School, Charing Cross Hospital, London, W C

St George s Hospital —This hospital has a service of 436 beds, of which 180 are allotted to surgical 150 to medical cases, and 100 are at the Convalescent Hospital at Wimbledon One ward is set apart for Diseases Peculiar to Women Children s beds are placed in all the women s wards Two wards are allotted to ophthalmic cases

The Winter Session commences on Oct 1st but students can enter at any time or for any particular course The Hospital and Medical School are situated at Hyde Park corner and are readily accessible from all parts of London At this school Entrance Scholarships and Endowed Prizes of a total value of £461 are awarded annually , a detailed list is placed below As the scientific and clinical parts of the medical student s curriculum are entirely separate there is no longer any object in conducting the scientific courses upon hospital premises The entire teaching and laboratories are therefore now devoted to purely clinical subjects, as in other universities, to the great advantage of students in their fourth and fifth years of study Arrangements have been made with the University of London for students who enter during the first second or third year of the curriculum as students of St George s to carry out the necessary courses of instruction at either University College or King s College Students therefore have the unrivalled advantages of the lectures and practical classes of these Colleges of the University during the preliminary and intermediate portions of their studies and then complete their course without payment of any entrance fee, in a school entirely devoted to Clinical work Students are permitted to enter the wards of the hospital at any hour Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital Eight house physicians and eight house surgeons are appointed annually All house appointments are open without fee to every perpetual student of the hospital and are made strictly in accordance with the merits of the candidates Special attention is directed to the following paid appointments, among others, which are open to students after they have held house office —Medical Registrarship at £200 per annum , Surgical Registrarship at £200 , Curatorship of the Museum at £200 , Assistant Curatorship at £100 , Obstetric Assistantship (Resident) at £50 , the post of Resident Anæsthetist at £100 , the post of Senior Anæsthetist at £50 , the posts (2) of Junior Anæsthetists, each at £30 Great attention is paid by members of the staff to individual teaching A number of special courses are given in which the requirements of university and other examinations receive careful attention The following may be cited as examples —(1)

ed Bacteriology , (3)

Pathology , (5) Histo-

, (6) Pharmacology ,

anced Anatomy and Physio

, (10) Public Health , and (11)

classes are held by members of the staff for all examinations The St George's Hospital Club, with smoking and luncheon rooms on the hospital premises, and an athletic ground at Wimbledon, is an amalgamation of the Hunterian Society, the *Gazette* and the chess, lawn tennis, boxing, hockey rifle, and golf clubs Students have the advantage of a library of medical and scientific books which is kept up to date A register of accredited apartments and a list of medical men and others willing to receive St George s men as boarders may be seen on application to the Dean Further information may be obtained from the Dean of the Medical School

Staff —Consulting Physicians Dr F T Whipham Sir Isambard Owen and Dr W Ewart Consulting Surgeons Mr Pick, Mr Haward Sir W Bennett, and Mr. Marmaduke Sheild Consulting Ophthalmic Surgeons Mr Brudenell Carter and Mr Adams Frost Consulting Aural Surgeon Sir William Dalby Consulting Dental Surgeon Mr Winterbottom Physicians Dr H D Rolleston, Dr Ogle Dr Latham, and Dr Collier Obstetric Physician Dr A F Stabb Assistant Physicians Dr Jex Blake, Dr Golla and Dr Torrens Assistant Obstetric Physician Dr Darwall Smith Physician to the Skin Department Dr W S Fox Physician Anæsthetist Sir Frederic Hewitt, M V O Surgeons Mr G R Turner Mr F Jaffrey, Mr Pendlebury and Mr T Crisp English Ophthalmic Surgeon Mr H B Grimsdale Assistant Ophthalmic Surgeon Mr R R James Assistant Surgeons Mr W F Fedden Mr I Back, and Mr C H Frankau Surgeon to the Throat Department Mr H S Barwell Aural Surgeon Mr W C Bull Dental Surgeon Mr N G Bennett Assistant Dental Surgeon Mr Morley

Lecturers —Bailie Lecturer in Physic (vacant) Thomas Young Lecturer in Medicine Sir William Osler Bart Clinical Medicine the Physicians and Assistant Physicians Clinical Surgery the Surgeons and Assistant Surgeons Principles and Practice of Physic Dr Rolleston, Dr Ogle, Dr Latham, and Dr Collier Tropical Medicine Dr T S Kerr Principles and Practice of Surgery Mr Turner, Mr Jaffrey, Mr Pendlebury and Mr English Midwifery and Diseases of Women and Children Dr Stabb Assistant Lecturer on Midwifery and Diseases of Women and Children Dr. Darwall Smith Vaccination Mr F Clinson Greenwood Insanity and Clinical Instructor in Insanity Dr Seymour Tuke Ophthalmic Surgery Mr Grimsdale Diseases of the Skin Dr Fox Aural Surgery Mr Bull Diseases of the Throat and Nose Mr Barwell Dental Surgery Mr Norman Bennett Assistant Lecturer on Dental Surgery Mr Morley Practical Medicine Dr Jex Blake Practical Surgery Mr Back Operative Surgery Mr C H Frankau Surgical Anatomy Mr Fedden Edward Jenner Lecturers on Public Health Mr C M Fegen and Capt W F Tyndale Hygiene Dr H Spitta Forensic Medicine and Toxicology Dr Trevor Toxicological Chemistry Mr Gardner Pathological Chemistry Dr Spriggs Pathology Dr Trevor Bacteriology Dr. Spitta Assistant Lecturer on Bacteriology and Lecturer on Clinical Pathology Dr F L Hunt Materia Medica and Therapeutics Dr Cyril Ogle Pharmacology Dr Golla Anæsthetics . Sir Frederic Hewitt, M.V O Teacher of during three years and to one attendance on Practical Pathology and Practical Surgery. Vaccination and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. This course of instruction is also suitable for the corresponding examinations at the Universities of Oxford, Cambridge, and Durham, and for the medical education required by the Examining Board in England and the Society of Apothecaries. There are over 300 beds in the hospital.

Special Departments, Clinical and Laboratory Facilities.—Those who are desirous of carrying out original research in Pathology, including Morbid Anatomy, Bacteriology, Experimental Pathology, and Chemical Pathology are admitted to work in the laboratories of the school by the Director of Pathological Studies and Research, and under certain conditions can receive grants from the Charles Graham Medical Research Fund. A special course of instruction is given for preparation for the examinations for Diplomas in Public Health of the various universities and examining bodies; also special courses of Lectures and Demonstrations in Anæsthetics, Diseases of the Eye, Ear, Nose, and Throat, Skin, and Diseases of the Teeth, in Electrical and Radioscopic Diagnosis and Treatment, in Clinical and Tropical Pathology, and in Cardiac Pathology. These courses are designed for senior students and graduates.

Appointments tenable by Students.—Clerkships and dresserships to the physicians, surgeons, anæsthetist, and pathologist are allotted amongst the students of the hospital. Maternity students are appointed each month and reside in the Students' House connected with the Medical School and Hospital. Eight house physicians and house surgeons, four senior and four junior obstetric assistants are selected annually by examination from among the senior students who have a medical qualification. The house physicians and house surgeons reside free in the hospital for six months, and the senior obstetric assistants for three months. In addition to these posts there are certain special appointments which are vacant from time to time and are filled by senior students of the hospital: 1. The Resident Medical Officer. This officer is appointed for a period of two years and is chosen from amongst the more senior recent residents of the hospital. 2. The Surgical Registrar is also chosen from among the more senior recent residents of the hospital. 3. The Obstetric Registrar. 4 Two Casualty Medical Officers and a Casualty Surgical Officer are appointed, each for a period of six months. 5. Assistant in Ear and Throat Department, appointed for one year. 6. Assistant in Ophthalmic Department, appointed for one year. 7. Registrar in Anæsthetic Department, appointed for one year. 8. Deputy Anæsthetists. During the absence of one or another of the Anæsthetists in the summer months a senior qualified student is appointed as a substitute and is granted a special certificate.

Museum of Pathological Anatomy.—The Museum, a spacious and well-lighted room, is open for study from 9 A.M. to 5 P.M. The collection is divided into three sections—medical, surgical, obstetrical and gynæcological. The surgical section is a particularly complete one and contains examples of every variety of surgical disease and injury. Diseases of the skin are well illustrated by a number of wax models which are conveniently displayed in glass cases. The obstetrical and gynæcological section is very complete. Microscopic sections of most of the specimens in the Museum have been prepared and are available for the use of students on application to the Curator. The Museum contains 1100 admirable paintings by Sir Robert Carswell and Sir Charles Bell and a collection of old surgical instruments formerly belonging to Robert Liston.

The Anatomical Museum of the University of London, University College, is open to all students of University College Hospital and Medical School on the recommendation of the School Committee.

The Medical Library is open daily for the purposes of study to every student of the Medical School from 9 A.M. to 5 P.M., Saturdays 9 A.M. to 1 P.M. It contains about 12,500 works on medical subjects, including all the current text-books and works of reference required for study or research.

The Medical Society of University College Hospital Medical School exists for the dual purpose (1) of promoting the study of Medical and Surgical Science, and (2) of promoting social intercourse among its members. All Students of the Medical School are eligible for membership. Meetings are held once a fortnight for the purpose of discussing subjects connected with the study of medicine and the allied sciences and for the exhibition of cases of pathological interest. One room in the Medical School is specially reserved as a Reading Room and is provided with current medical works and periodicals. The society also possesses an osteological and a pathological collection for the use of its members. In its social aspect the society includes various athletic clubs and has the management of three rooms on the ground floor of the Medical School, which are supplied with newspapers, magazines, writing materials, chess- and draught-boards, &c., solely for the use of its members. The society also superintends the commodious gymnasium of the Medical School. The Athletic Ground, which is used in conjunction with the Union Society of the University of London University College, is situated near the Great Western Railway station at Perivale and is within easy reach of the Hospital and School, about 35 minutes by train from Gower-street station. The following clubs are connected with the society: Cricket Club, Rugby Football Club, Association Football Club, Hockey Club, and Lawn-Tennis Club. The society also has the use of the College racquets and fives courts for its members. The affairs of the society are conducted by a committee elected annually by the members.

Residence of Students.—A register of boarding residences is kept in the office of the Medical School for the convenience of students; these residences are not under the control of the school authorities. University College Hall, Ealing, is recognised by the Medical School authorities as a residential hostel. The Students' House in University-street contains large and comfortable rooms. The Maternity Students occupy them on payment of a moderate charge.

Private Instruction.—Gentlemen who desire assistance in their studies should consult the Dean or Lecturers.

Hospital Staff.—Consulting Physicians: Sir William R. Gowers, Dr. H. C. Bastian, Sir John Williams, Bart., G.C.V.O., Dr. F. T. Roberts, and Sir Thomas Barlow, Bart. Physicians: Sir John Rose Bradford, K.C.M.G., Dr. Sidney Martin, Dr. J. Risien Russell, Dr. H. Batty Shaw, and Dr. F. J. Poynton. Assistant Physicians: Dr. C. Bolton, Dr. T. R. Elliott, and Dr. T. Lewis. Obstetric Physicians: Dr. H. R. Spencer and Dr. G. F. Blacker. Physician to Skin Department: Dr. A. M. H. Gray. Physician in charge of Mental Diseases Department: Dr. Bernard Hart. Consulting Surgeons: Sir John Tweedy (Ophthalmic) and Sir Victor Horsley. Surgeons: Mr. A. E. Barker, Sir Rickman J. Godlee, Bart., Mr. Bilton Pollard, and Mr. Raymond Johnson. Assistant Surgeons: Mr. Wilfred Trotter and Mr. H. Morriston Davies. Ophthalmic Surgeons: Mr. Percy Flemming and Mr. J. H. Parsons. Professor and Lecturer on Public Health: Dr. Henry R. Kenwood. Dental Surgeons: Mr. Sidney Spokes and Mr. H. J. Relph. Anæsthetists: Dr. Dudley Buxton and Dr. H. J. Scharlieb. Assistant Anæsthetist: Dr. A. Beresford Kingsford. Surgical Registrar: Mr. G. E. O. Williams. Resident Medical Officer: Dr. H. L. Tasker. Pathologist: Mr. T. W. P. Lawrence. Assistant Physician in Charge of Cardiographic Department: Dr. T. Lewis. Officer in charge of Electro-Radiographic Department: Mr. R. H. Cooper. Pharmacist: Mr. R. R. Bennett.

Teaching Staff.—Medicine—The Principles and Practice of Medicine: Dr. Sidney Martin. Clinical Medicine: Sir John Rose Bradford, Dr. Sidney Martin, Dr. J. Risien Russell, Dr. H. Batty Shaw, Dr. F. J. Poynton, Dr. C. Bolton Dr. T. R. Elliott, and Dr. T. Lewis. Therapeutics: Dr. H. Batty Shaw. Surgery—The Principles and Practice of Surgery: Mr. Arthur E. J. Barker. Clinical Surgery: Mr. Arthur E. J. Barker, Sir Rickman J. Godlee, Bart., Mr. Bilton Pollard, Mr. Raymond Johnson, Mr. Wilfred Trotter, and Mr. H. Morriston Davies. Practical Surgery: Mr. Raymond Johnson and Mr. H. Morriston Davies. Surgical Anatomy: Mr. H. T. Mant. Midwifery and Gynæcology—Dr. H. R. Spencer. Clinical Midwifery and Gynæcology: Dr. H. R. Spencer and Dr. G. F. Blacker. Diseases of Childhood: Dr. F. J. Poynton, Mr. Raymond Johnson, Mr. Percy Flemming, and Mr. Herbert Tilley. Pathology and Morbid Anatomy—General Pathology: Dr. Charles Bolton. Practical Pathology: Dr. F. H. Thiele, Mr. T. W. P. Lawrence, Mr. D. Embleton, and Mr. S. H. Warren. Laboratory and Special Instruction: Dr. Charles Bolton. Chemical Pathology and Clinical Pathology: Dr. F. H. Thiele. Museum of Pathological

Anatomy and Post mortem Examination Mr T W P Lawrence Cardiac Pathology Dr T. Lewis Parasitic Protozoology Mr A C Stevenson Forensic Medicine Dr F J Poynton Diseases of the Eye—Ophthalmic Medicine and Surgery Mr Percy Flemming Clinical Ophthalmology. Mr Percy Flemming and Mr J Herbert Parsons Diseases of the Ear and Throat Mr Herbert Tilley Diseases of the Skin Dr A M H Gray Psychiatry Dr. Bernard Hart Dental Surgery Mr Sidney Spokes and Mr H J Relph Instruction in the Use of Anæsthetics Dr *Dudley W Buxton Electro radiographic Department* Mr R Higham Cooper Practical Pharmacy Mr R R Bennett

Scholarships and Prizes—At this School the first two Scholarships (*a*) and (*b*) require a complete course at University College and University College Hospital Medical School, the second two (*c*) and (*d*) require a final course at the Medical School The money value and subjects of examination are as follows—(*a*) Entrance Scholarship, Bucknill, 135 guineas, Chemistry, Physics, Botany, and Zoology, (*b*) Epsom Free Medical Scholarship, subjects of Preliminary Scientific Examination and nomination by Epsom College, (*c*) and (*d*) two Goldsmid Entrance Exhibitions 80 guineas each, Anatomy and Physiology, (*e*) Graham Scholarship in Pathology £200 per annum for two years, awarded by the Senate of the University of London, (*f*) Atkinson Morley Scholarship, tenable for three years, £45 per annum, Surgery, (*g*) Atchison Scholarship tenable for two years, £55 per annum, General Proficiency in Medical Studies (*h*) Filliter Exhibition, £30, Pathology, (*i*) Erichsen Prize, £10 10*s*, Practical Surgery, (*j*) two Senior and two Junior Fellowes Clinical Medals for Clinical Medicine, (*k*) two Liston Gold Medals for Clinical Surgery, (*l*) Alexander Bruce Gold Medal for Pathology and Surgery, and (*m*) Tuke Silver and Bronze Medals for Pathology

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WESTMINSTER HOSPITAL—The hospital contains 215 beds and affords relief to upwards of 2000 in patients and 30,000 out patients annually There are separate departments for Diseases of the Eye Ear, Skin Teeth, and Throat, for Orthopædic practice, for Diseases of Women, for Diseases of Children, for Radiography, and for the Light Treatment The Anatomical, Pathological, and Materia Medica Museums are open to all students of the school

A medical and a surgical registrar, each with a salary of £50, are appointed annually Two house physicians three house surgeons and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons, also one assistant house physician and one assistant house surgeon with commons only Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students of the hospital

By a scheme for the concentration of the teaching of the preliminary and intermediate subjects of the curriculum, which has the support of the London University, an *arrangement has been made by the Westminster School* for the teaching of these subjects at King s College Students, however, join the Westminster Medical School as formerly and may compete for Entrance Scholarships as heretofore

There is laboratory accommodation for practical work in Chemistry, Physics Biology, Anatomy Physiology, Histology, Pathology, and Bacteriology and a new Clinical Laboratory has recently been erected Facilities for research are afforded in all the laboratories

For outdoor recreation the following clubs exist the Athletic Sports Club, the Cricket, Lawn Tennis, Swimming and Football Clubs For indoor recreation there are the Students' Club, the Chess Club, and the Guthrie Society, the last named being a debating club These clubs and societies together constitute the Clubs Union, for membership of which students are not required to pay, the expense being covered by the entrance fee to the school

Staff—Consulting Medical Staff Sir Bryan Donkin, Dr de Havilland Hall, and Dr Hebb Consulting Surgical Staff Mr Richard Davy, Mr G Cowell, and Mr N C Macnamara Medical In patient Staff Dr A M Gossage, Dr Purves Stewart, and Dr Carmalt Jones Obstetric Physician Dr G H Drummond Robinson Surgical In patient Staff Mr C Stonham, Mr W G Spencer, and Mr A H Tubby Medical Out-patient Staff Dr D H de Souza, Dr Kinnier Wilson, and Dr O K Williamson Physician for Diseases of the Skin; Dr. T. Colcott Fox Assistant Obstetric Physician Dr S Dodd Surgical Out patient Staff Mr W Turner Mr Arthur Evans, Mr Rock Carling, and Mr J M G Swainson. Surgeon in charge of the Throat Department Mr P R W De Santi Ophthalmic Surgeon Mr G Hartridge Surgeon in charge of the Orthopædic Department Mr W Turner Surgeon in charge of the Ear Department Mr P R W De Santi Dental Surgeons Mr C W. Glassington and Mr E Gardner Administrators of Anæsthetics Dr N W Bourns and Dr V B Orr Assistant *Anæsthetist* Dr *Cecil Hughes Physician Pathologist* Dr R G Hebb Assistant Pathologist and Curator of Museum Dr J A Braxton Hicks Medical Registrar Dr H B Carlill Surgical Registrar Mr R Farrant Pharmacist Mr A E Tanner Secretary Mr S M Quennell

Lecturers—Clinical Medicine Dr Gossage Dr Stewart, and Dr Carmalt-Jones Clinical Surgery Mr Stonham, Mr Spencer and Mr Tubby Clinical Gynæcology Dr Drummond Robinson Medicine Dr Gossage, Dr Purves Stewart, Dr Carmalt Jones, Dr de Souza Dr Kinnier Wilson, Dr Williamson, and Lieutenant Colonel Pratt Diseases of the Skin Dr S E Dore Insanity Dr Stoddart Surgery (vacant) Ophthalmic Surgery Mr Hartridge Surgery of the Throat and Nose Mr De Santi Orthopædic Surgery Mr Tubby Aural Surgery Mr De Santi Dental Surgery Mr Glassington Anæsthetics Dr Bourns Operative Surgery Mr Turner Surgical Anatomy Mr Arthur Evans Practical Surgery Mr Rock Carling and Mr Swainson Surgical Pathology Mr Turner Midwifery and Diseases of Women Dr Drummond Robinson General Pathology and Morbid Anatomy Dr Hebb Post mortem Demonstrations Dr Hebb Materia Medica Therapeutics and Pharmacology Dr *Dixon Forensic Medicine* Dr *Bernstein* Toxicology Dr H Wilson Hake Public Health Dr S Monckton Copeman Bacteriology Dr Bernstein Anatomy Dr R J Gladstone Demonstrators of Practical Anatomy Mr Boyd and Mr Fenwick. Physiology Dr Halliburton Practical Physiology and Histology Dr Halliburton, Mr Myers Ward Dr Locke, and Dr Rosenheim Biology Dr Bottomley and Mr Schwartz Chemistry and Practical Chemistry Dr Thomson Mr Jackson, Mr Kirkaldy, Mr Smith Mr Collins and Mr Hinkel Physics Dr Barkla Dr Allen Dr H Moore, and Mr Martyn Secretary and Librarian Dr E B Hulbert

Scholarships and Prizes—The following Entrance Scholarships are offered for competition—Winter Session (*a*) Arts Scholarship the 'Guthrie £60 (*b*) Science Scholarships Natural Science Scholarship, £60, Chemistry and Physics Scholarship £30, and Two Scholarships in Anatomy and Physiology £50 each Summer Session The Governors' Scholarship for Chemistry and Physics, £40, and Two Scholarships in Anatomy and Physiology, £50 each During the period of study the following prizes may be competed for Sturges Prize in Clinical Medicine about £6, Notes of Cases, Clinical Surgery Prize £5, *Notes of Cases*, Chadwick Prize £21 in books or instruments, Medicine and Surgery including Pathology and Applied Anatomy and Physiology, Frederic Bird Medal and Prize open to Fourth year Students, £14 in medal and books or instruments—Midwifery, Diseases of Women Medicine, and Pathology, Abrahams Prize in Clinical Pathology, 5 guineas, a Paper and Tests in Practical Work, Alfred Hughes Memorial Prize, open to Second year Students about £5 in books or instruments—Anatomy, Huxley Memorial Prize, 3 guineas in books or cash open to Second year Students—Physiology, Carter Gold Medal and Prize for Botany, open to Students of not more than three years' attendance, gold medal and books of the joint value of £15; Jelf Medal awarded to Third year Students, Second-year Scholarship, £20, Elementary Anatomy, Physiology, Histology, and Organic Chemistry, Daniell Scholarship, tenable for two years, £20, Chemistry, Rabbeth Scholarship, open to First year Students, £20, Class Examinations in the Preliminary Scientific Course, and the Sambrooke King s College Scholarship in Science, value £25

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter street, Brunswick square, W C—The fee for the medical course for the degrees of the University of London and for the diplomas of the Royal Colleges of England, after the completion of the First Medical Examination Course, is £135 in one sum, or £145 in four instalments. The fee for the First Medical classes is £25. The fee for the course for the University of Durham, the Society of Apothecaries, and the Conjoint Colleges of Scotland, including Elementary Science, is £140 in one sum, or £150 in four instalments.

The hospital contains 165 beds, of which 78 are reserved for surgical, 64 for medical, 13 for gynæcological, six for ophthalmic, and four for isolation cases. The number of in-patients treated during the past year was 2344. There is also a department for attending women in their confinements at their own homes. Students can also attend the in-patient and out-patient practice of the New Hospital for Women.

Special classes for the First Medical Examination of the University of London are held and special courses of instruction in Anatomy, Physiology, and Practical Pharmacology are provided for students preparing for the Second Medical Examination of the University of London.

Students after qualification can hold at the Royal Free Hospital the posts of house physician, house surgeon, obstetric assistants, clinical assistants, anæsthetists and assistant anæsthetist, medical and surgical registrars, medical electrician, and museum curator; and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Chemistry, and museum curator. They can also hold posts at the New Hospital for Women, which is officered entirely by medical women.

The School buildings have been entirely rebuilt in recent years and there are spacious, well-equipped laboratories, which afford every facility for efficiency of teaching and practical work in all departments.

There are residential chambers at 8, Hunter-street, with accommodation for 16 students, and the Secretary can be consulted on the subject of other residences for students. There is a Tennis Club with a gravel court at the School, and also hockey, boating, and other clubs.

Staff.—Consulting Physician: Dr. S. West. Physicians: Dr. Harrington Sainsbury, Dr. J. W. Carr, and Dr. A. G. Phear. Assistant Physicians: Dr. W. P. S. Branson and Dr. Langmead. Consulting Surgeon: Mr. A. B. Barrow. Surgeons: Mr. J. Berry, Mr. W. H. Evans, Mr. T. Percy Legg, and Mr. Cunning. Consulting Ophthalmic Surgeon: Mr. H. Work Dodd. Consulting Neurologist: Dr. Farquhar Buzzard. Consulting Physician for Diseases of Women: Mrs. Scharlieb, M.S., M.D. Physician for Diseases of Women: Mrs. Vaughan-Sawyer, M.D., B S. Assistant Physician for Diseases of Women: Mrs Willey, M.S., M.D. Surgeon for Diseases of Throat, Nose, and Ear: Mr. J. Gay French. Ophthalmic Surgeon: Mr. M. L. Hepburn. Assistant Surgeon: Mr C. Pannett. Surgeon for Diseases of Skin: Mr. W. H. Evans. Dental Surgeons: Mrs. Handley Read; L R C P. & S., L.D S , and Mr. E. P. Hudson, L D.S. Senior Resident Medical Officer: Mr. C. A Joll. Registrars: Miss M. H Fraser, M.B., B.S., and Miss E. Davies-Colley, M.D., F.R C.S. Anæsthetists: Mrs. Berry, M.D., B S., and Miss Turnbull, M.D., B S. Secretary: Mr. Reginald Garratt.

Lecturers.—At the School: Anatomy and Practical Anatomy: Dr. F. Wood-Jones. Physiology and Practical Physiology: Miss Cullis, D.Sc. Chemistry: Mr. J. A Gardner, M.A., F.I C., and Miss Widdows, B Sc. Physics: Miss E. Stoney, M.A. Biology: Mr. Mudge, A.R.C.S. Pharmacology: Dr. F. Ransom. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: Mrs. Willey, M.D., M.S. Gynæcology: Mrs. Vaughan-Sawyer, M.D. Forensic Medicine: Dr. Hawthorne. Toxicology: Dr. Wilson Hake. Practice of Surgery: Miss Aldrich-Blake and Mr. W. H. Evans. Operative Surgery: Mr. Cunning. Pathology: Dr. W. d'Este Emery. Mental Pathology: Dr. Stoddart. Tropical Diseases: Dr. C. W. Daniels. Operative Midwifery: Mrs. Willey, M.D., M.S. Demonstrators of Anatomy, Miss M. A. Blair, M D., B.S., and Miss Lucas, M.B., B S.; of Physiology, Mrs. Tribe, B.Sc ; of Chemistry and Biology, Miss Laycock B.Sc.; of Physics, Miss Waller, B.Sc.; of Practical Pharmacology, Miss Buchanan, M.P.S. At the Royal Free Hospital: Clinical Medicine: Dr. Sainsbury and Dr. Carr. Clinical Surgery: Mr. Berry and Mr. Evans. Clinical Obstetrics: Mrs. Willey, M.D., M.S. Pathology: Dr. Langmead. Bacteriology: Miss Chambers, M.D., B.S. Surgical Tutors: Mr. Cunning, Mr. Legg, and Mr. Pannett. Medical Tutors: Dr. A. G. Phear and Dr. Branson. Demonstrator of Practical Clinical Pathology: Miss Chambers, M.D., B.S. Practical Pathology: Miss G. Gazdar, M.B., B.S.

Dean of the School, Miss Cock, M.D.; Vice Dean, Miss Aldrich-Blake, M.D., M.S.; Honorary Secretary, Miss May Thorne, M.D.; Secretary and Warden, Miss L. M. Brooks.

Scholarships and Prizes.—At this School candidates for the second item (*b*) on the following list must be (1) not more than 20 years of age on June 1st in the year of the examination; (2) resident in the Metropolitan Police district; (3) Matriculated Students of the University of London; and (4) in need of an Exhibition for the prosecution of their medical studies. The third item (*c*) is given as the result of an examination held by the University of London in June to a student who has passed the First or Second Medical Examinations of that University held in the previous July or the July following the examination. Candidates are expected to read for the M.B., B.S. degree of the University of London. The money value and subjects of examination are as follows: (*a*) Isabel Thorne Scholarship, £30, English Latin, Arithmetic, Euclid, and Algebra. (*b*) St. Dunstan's Medical Exhibition tenable for three years, extendible to five years, £60, English, Latin, Arithmetic Euclid, and Algebra. (*c*) Bostock Scholarship; tenable for two or four years, and next to be awarded in June, 1915, £60. (*d*) Mabel Sharman-Crawford Scholarship, tenable for four years, £20; awarded on result of an examination in Biology, Chemistry, and Physics. (*e*) Mabel Webb Research Scholarship, tenable for one year and renewable, £30, Physiology, Chemistry, or Pathology. (*f*) Fanny Butler Scholarship, tenable for four years; candidates must be willing to work in connexion with the Church of England Zenana Missionary Society; next award in September, 1914, £14 10*s*. (*g*) John Byron Bursary, tenable from two to four years, for students already in the School requiring assistance for the prosecution of their medical studies, application to the Secretary by March 1st; next award in March, 1914, £20 (*h*) Helen Prideaux Scholarship, awarded every second year to a student who has become qualified during the two years immediately preceding the award, and to be spent in assisting the holder to further study, £40, Medicine, Surgery, Obstetric Medicine, and Pathology. (*j*) Agnes Guthrie Bursary, value £60, is offered annually to students who desire to pursue a full course of study for the Licentiateship in Dental Surgery. Candidates will be required to fulfil the following conditions: (1) Have passed a Preliminary Arts Examination qualifying for registration; (2) produce evidence as to need for financial assistance; (3) furnish references from former teachers; (4) make a written statement of previous education and career. The Bursary will be awarded on the recommendation of a Board of Electors in September each year. Applications must reach the Secretary by Sept. 16th, 1913. (*k*) Dr. Edith Pechey Phipson Post-graduate Scholarship of the value of £40 is awarded annually in June by the Council of the London (Royal Free Hospital) School of Medicine for Women who are the trustees of the scholarship. It is open to all medical women preferably coming from India, or going to work in India, for assistance in Post-graduate study. The scholarship may, at the discretion of the trustees be held by one recipient for a term not exceeding three years Forms of application can be obtained from the Secretary of the School and must be filled in and returned by May 31st in each year. Two Richardson-Kuhlmann Prizes are given each year, value £12 for proficiency in Clinical Obstetrics, value £10 for proficiency in senior subjects respectively. Three Evans Prizes of £3 3*s*., £2 2*s*., and £1 1*s*. are given in alternate years on the results of the class examination in Midwifery, and a Durham Prize value £3, on the results of the class examination in Gynæcology. The Evans Prize for Operative Midwifery, value £5 5*s*., is awarded yearly. The Edith Pechey Phipson Prize in Pharmacology, value £3 3*s*., is awarded annually. Prizes of £10 each are awarded yearly in Anatomy and Physiology. There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help. Prizes and Certificates of Honour are awarded in each class at the end of the session.

UNIVERSITY OF DURHAM.

Two Diplomas, one Licence, and six degrees are conferred—viz., the Diploma in Public Health, Diploma in Psychiatry, the Licence in Dental Surgery, and the degrees of Bachelor of Medicine, Bachelor of Surgery, Master of Surgery, Doctor of Medicine, Bachelor of Hygiene, and Doctor of

Hygiene. These degrees, Diploma, and Licence are open both to Men and Women.

For the degree of *Bachelor of Medicine* there are four professional examinations. The subjects of the First Examination are—Elementary Anatomy and Elementary Biology, Chemistry, and Physics. The subjects of the Second Examination are—Anatomy and Physiology. The subjects for the Third Examination are—Materia Medica and Pharmacy, Pathology, Medical Jurisprudence, Public Health, and Pathology and Elementary Bacteriology. The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery and Diseases of Women and Children, and Therapeutics.

It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine, Newcastle-upon-Tyne Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board.

For the degree of *Bachelor of Surgery* every candidate must have passed the examination for the degree of Bachelor of Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Regional Anatomy. Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances.

For the degree of *Master of Surgery* candidates must not be less than 24 years of age and must satisfy the University as to their knowledge of Greek or German. In case they shall not have passed in one of these subjects at the Matriculation Examination for the M.B. degree they must present themselves at Newcastle-upon-Tyne for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.S. They must also have obtained the degree of Bachelor of Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical [illegible] and [illegible] ny, [illegible] must [illegible] the [illegible] In [illegible] at [illegible] pose before they can proceed to the higher degree of M.D. They must also have obtained the degree of Bachelor of Medicine of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Medicine in attendance on the practice of a recognised hospital, or in the military or naval services, or in medical and surgical practice. Each candidate must present an essay prepared entirely by himself, which must be typewritten, based on original research or observation, on some medical subject selected by himself, and approved of by the Professor of Medicine and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the essay.

Doctor of Medicine (without residence).—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners. They shall produce certificates of moral character from three registered members of the medical profession, and if they have not passed an examination in Arts previously to the Professional Examination in virtue of which they have been placed on the Register, they shall be required to pass in Classics and Mathematics. Candidates who have passed an examination in Arts previously to being placed on the Register are required to pass an examination in Latin. They will be examined in the Principles and Practice of Medicine, including Psychological Medicine, Hygiene, and Therapeutics, the Principles and Practice of Surgery, Midwifery, and Diseases of Women and Children, Pathology (Medical and Surgical), Anatomy (Medical and Surgical), Medical Jurisprudence, and Toxicology. The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners.

Candidates for any of the above degrees, diplomas or licence, must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-upon-Tyne. In the case of the M.D. (essay) examination candidates must send in their essays six weeks before the date of the examination.

Professors—Principles and Practice of Medicine: Sir G. H. Philipson, M.D., Dr. David Drummond, and Sir T. Oliver, M.D. Psychological Medicine: Dr. T. W. McDowall. Surgery: Mr. James Rutherford Morison and Mr. Henry [illegible] Angus. Ophthalmology: Dr. John Dobson Wardale. [illegible] Women and Children: Dr. R. P. [illegible] Dr. Stuart McDonald; lecturer, [illegible] Medical Jurisprudence: Dr. [illegible] Health: Dr. Thomas Eustace Hill. Therapeutics: Dr. Thomas Beattie. Anatomy: Dr Robert Howden, F.R.S.E.; demonstrators, Dr. James Dunlop Lickley and (vacant). Surgical Anatomy: Lecturer, Mr. John Clay. Physiology: Dr. Francis Arthur Bainbridge; lecturer, Dr. James Acworth Menzies. Materia Medica and Pharmacology: Dr. William Errington Hume. Comparative Pathology and Bacteriology: Mr. H. J. Hutchens; lecturer, Mr. Percy Charles W. Laws; demonstrators, Dr. William John Tulloch and Dr. George Hall.

Scholarships and Prizes.—In connexion with this University the following scholarships and prizes are awarded:—(*a*), (*b*), (*c*), and (*d*), Four Scholarships of £25 a year each, tenable for four years; the examination will be the September Matriculation Examination. Candidates must take English, Latin, Arithmetic, Euclid, Algebra, [illegible] Greek or German, or both [illegible] al books.) Open to candid[illegible] as Medical Students. The [illegible] out their entire curriculum [illegible] College of Medicine, Newcastle-upon-Tyne. (*e*) Pears Scholarship of £50 a year (when vacant), tenable for three years; Matriculation [illegible] (*f*) Dickinson [illegible] examination [illegible] y. Open to [illegible] e passed the [illegible] ip, interest on £400; examination in Anatomy, Physiology, and Chemistry. No student is eligible who commenced his medical curriculum more than two academical years before the date of examination. (*h*) *Charlton Memorial Scholarship*, interest on £700; examination in Medicine. Open to [illegible] for the class on the P[illegible] (*i*) Gibb Scholarship, i[illegible] as a Scholarship in Pathology to full student who passes the best examination in that subject. No student is eligible after completion of his curriculum. (*j*) Luke Armstrong Memorial Scholarship, interest on £680: original essay on some subject in Comparative Pathology. (If no essay of sufficient merit be presented the scholarship may be awarded to the candidate who, in passing the first part of the Examination for the B.Hy. Degree, obtains the highest number of marks in Comparative Pathology during the year.) Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University and whose age does not exceed 30 years. (*k*) Stephen Scott Scholarship, interest on £1000; original essay on any Surgical subject. Open to any graduate in Medicine or Surgery of the University or any student of the College of Medicine. Student's age must not exceed 30 years. (*l*) Heath Scholarship, interest on £4000. For 1914: Original Essay on Natural Cures in Surgical Abdominal Disease, All Graduates in Medicine or Surgery of the University are eligible. (*m*) Gibson Prize, interest on £225; examination in subject of Midwifery and Diseases of Women and Children. Open to students who have attended one course of lectures on Midwifery and Diseases of Women and Children. (*n*) Turnbull Prize and Medal; examination in Surface Anatomy. Open to students at end of their second winter *session.—At the Royal* Infirmary is (*o*) Goyder Memorial Scholarship interest on £325; awarded annually to student who most distinguishes himself in Clinical Medicine and Clinical Surgery at the

Royal Infirmary. For further information apply to Professor Howden, Secretary of the College.

Hygiene.—The regulations with regard to the degrees in Sanitary Science will be found under the section on Public Health.

THE COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—A new wing has been added to accommodate the departments of physiology and bacteriology. It also contains a students' gymnasium and a set of Students' Union rooms.

Clinical Instruction.—The new Royal Victoria Infirmary, containing upwards of 400 beds, was opened by His late Majesty King Edward VII. in 1906. In the new infirmary adequate accommodation is provided for the study of the various special subjects, in addition to the ordinary clinical work. The following Scholarships and Prizes are awarded annually:—Four University of Durham Scholarships, value £25, tenable for four years, for proficiency in Arts, awarded to full students in their first year. The Pears Scholarship, value £50 a year, tenable for three years (when vacant). The Dickinson Scholarship, value the interest of £400, and a Gold Medal, for Medicine, Surgery, Midwifery, and Pathology. The Tulloch Scholarship, value the interest of £400, for Anatomy, Physiology, and Chemistry. The Charlton Scholarship, value the interest of £700, for Medicine. The Gibb Scholarship, value the interest of £500, for Pathology. The Goyder Memorial Scholarship (at the Infirmary), value the interest of £325, for Clinical Medicine and Clinical Surgery. The Luke Armstrong Memorial Scholarship, value the interest of £680, for Comparative Pathology. The Stephen Scott Scholarship in Surgery, value the interest of £1000. Heath Scholarship: The late Dr. George Yeoman Heath, President of the University of Durham College of Medicine, bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year; the next award will be in 1914. The Gibson Prize, interest on £225, in the department of Midwifery and Diseases of Women and Children. The Turnbull Prize and Medal for Surface Anatomy. At the end of each session Prizes of Books are awarded in each of the regular classes. Assistant Demonstrators of Anatomy, Prosectors, and Assistant Demonstrators of Physiology and Pathology are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Throat and Ear Department, and Skin Department, Clinical Clerks, and Dressers are appointed every three months.

NEWCASTLE-UPON-TYNE ROYAL VICTORIA INFIRMARY.—This Infirmary was founded in 1751 but has been entirely rebuilt, the new hospital being opened in 1906. The number of beds is 430. The number of in-patients annually is 8000 and of out-patients 100,000. The medical students of the University of Durham attend the practice of this hospital. Clinical Lectures are delivered by the Physicians and Surgeons weekly and ward demonstrations are given daily. Tutorial classes are held by the Assistant Physicians, Assistant Surgeons, and Surgical Registrars weekly, and demonstrations are given in the several out-patient departments daily. Pathological demonstrations are given by the Pathologist daily or as opportunity occurs, and in the new buildings nothing has been spared in perfecting scientific equipment. In addition to medical and surgical in-patient and out-patient departments the following special departments are fully equipped for teaching students: Ophthalmic, Throat and Ear, Skin, Orthopædic, Gynæcological, Electrical, and Bacteriological. The hospital building contains the following laboratories: 1. Special Pathological Laboratory, attached to the post-mortem rooms. 2. Bacteriological Laboratory, in which all clinical bacteriological investigations are carried out—opsonic indices estimated with a view to treatment by vaccines and serums, &c. 3. There is in addition a Clinical Laboratory attached to each ward and to the out-patient department. There are five operating theatres in use in the hospital, three large theatres, a smaller one for emergencies, and an out-patient theatre. The surgical practice is especially good; more than 8000 surgical operations were performed in the last 12 months. Every facility is given to students to take out the full or any part of the hospital curriculum, and clerkships or assistantships in any of the several special departments are open to undergraduates or graduates for periods of from one to three months. There are 12 resident medical and surgical officers, all of whom are paid, and preference for these appointments is given to students who have fulfilled their curriculum in the hospital. The sessions open on April 18th and Oct. 1st of each year. Applications for detailed information should be made to the Dean, Dr. Horsley Drummond, at the hospital.

Staff.—Physicians: Dr. T. Beattie, Dr. W. E. Hume, Dr. Horsley Drummond, and Dr. Alfred Parkin. Assistant Physicians: Dr. George Hall, Dr. T. M. Allison, Dr. D. W. Patterson, and Dr. T. C. Hunter. Surgeons: Mr. J. Rutherford Morison, Mr. A. M. Martin, Mr. H. B. Angus, and Mr. J. V. W. Rutherford. Assistant Surgeons: Mr. W. G. Richardson, Mr. J. W. Leech, Mr. John Clay, and Mr. G. G. Turner. Ophthalmic Surgeon: Mr. J. D. Wardale. Assistant Surgeon: Mr. T. Gowans. Throat and Ear Department: Surgeon: Mr. S. S. Whillis. Assistant Surgeon: Mr. W. F. Wilson. Gynæcological Department: Dr. R. P. R. Lyle. Skin Department: Physician: Dr. Robert A. Bolam; Assistant Physician: (vacant.) No Orthopædic Department now; this branch is now done by the general surgeons. Electrical Department: Dr. W. D. Arnison. Pathologist: Dr. Stuart McDonald. Assistant Pathologist: Dr. W. T. Sewell. Bacteriologist: Dr. H. J. Slade. Pathological and Analytical Chemist: (vacant). Anæsthetists: Dr. F. G. Armstrong, Dr. W. J. Phillips, Dr. H. H. Markham, and Dr. W. Seymour. Medical Registrars: Miss H. Gurney and Dr. J. Leslie Wilson. Surgical Registrars: Mr. J. W. Heslop, Mr. J. C. Stewart, Mr. R. J. Willan, Mr. Hamilton Drummond, and Mr. F. C. Pybus.

There are other institutions at which the student of medicine of the University of Durham can receive clinical instruction. Practical Midwifery can be studied at the Newcastle Lying-in Hospital. Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth, by Professor T. W. McDowall, the Superintendent. A special course of instruction is given in the City Hospital for Infectious Diseases by the Superintendent, the City Officer of Health, Dr. Harold Kerr.

NORTHUMBERLAND, DURHAM, AND NEWCASTLE INFIRMARY FOR DISEASES OF THE EYE, St. Mary's-place, Newcastle-on-Tyne.—Consulting Surgeon: Dr. F. Page. Staff Surgeons: Mr. A. S. Percival and Mr. H. P. Bennett. Assistant Surgeons: Dr. Stanley Robson. Honorary Anæsthetist: Dr. O. W. Ogden. House Surgeon: Miss F. Rahtkens. Matron: Miss M. Webster. Secretary: Mr. Richard Smith, 61, Westgate-road, Newcastle-on-Tyne. Out-patients for 1912, 9360; in-patients, 339.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., Ch.B., M.D., Ch.M., and also a degree and a diploma in Public Health. The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council. As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other school or schools of medicine recognised by the University. The students of the Medical Faculty can be members of the University Club, the University Athletic Club, and the University Officers' Training Corps, while they possess a guild—the Guild of Undergraduates—which is designed to be a recognised medium of communication between the teachers and the taught. The University Medical Society and the Dental Students' Society also offer opportunities of coöperation for mutual benefit.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—The student must have passed either the Matriculation Examination of the University or one of the following examinations. For the present the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of medical students, provided always that such examination shall have included the subjects of English, Latin, Mathematics, and any one of the following: Greek, French, German, or any other modern foreign language, together with Chemistry or Experimental Mechanics, or some other branch of *Experimental Physics*, and that all the subjects have been passed at one examination (a) the previous examination of the University of Cambridge, (b) Responsions of the University of Oxford, (c) the Preliminary or Matriculation Examination of a recognised University, (d) the (Higher) Certificate of the Oxford and Cambridge Examinations Board, (e) the Oxford or Cambridge Senior Local Examination A Matriculation Examination will commence on *Sept 8th, 1913* *First Examination*—Chemistry and Physics and Elementary Biology Second Examination —Anatomy and Physiology Third Examination —Pathology and Bacteriology, Materia Medica and Practical Pharmacy Fourth Examination (at the end of the fourth year) —Forensic Medicine, Toxicology, Public Health, and Therapeutics Two years' hospital work must have been accomplished Final Examination —Medicine, Surgery, Midwifery, Diseases of Women, Mental Diseases, and Ophthalmology Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital and lunatic asylum Vaccination instruction must be taken out and courses of Ophthalmology, Medical and Surgical Anatomy, and Operative Surgery

Degrees of Doctor of Medicine and Master of Surgery —At the end of one year from the date of having passed the final M B, Ch B examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both

Candidates for either of these degrees will be required to comply with the following regulations Every candidate for the degree of M D shall present a thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below, and in addition he will be required to pass a general examination in Principles and Practice of Medicine It will be in the power of the Board of Examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations

A thesis may be presented in any of the following departments of study (a) Anatomy including Comparative Anatomy, (b) Physiology, (c) Human or Comparative Pathology, (d) Bacteriology, (e) Pharmacology, (f) Therapeutics, (g) Medicine, (h) Mental Diseases, (i) Preventive Medicine or Public Health, (j) Toxicology, (k) Legal Medicine, (l) Midwifery

Candidates for the degree of Ch M are required to comply with the following regulations —At the end of one year from the date of having passed the final M B, Ch B [illegible] themselves [illegible] ndidates for [illegible] e following [illegible] a thesis [illegible] ced in one [illegible] enumerated below, in addition the candidates will be required to pass a general examination in Principles and Practice of Surgery and to perform operations on the cadaver 2 It will be in the power of the board of examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations 3 The candidate may be examined in that department of the medical curriculum from which the subject of his thesis is chosen and the examiners may require to see the notes of original observations on which the thesis is based, (a) Surgery, (b) Pathology, (c) Bacteriology (d) Gynæcology, (e) Ophthalmology

Degree in Public Health —For the regulations for this degree and for the diploma in the same subject see p 690

Fees —Matriculation £2, First Examination £2, Second Examination [illegible] rth Examination, £2, Fi[illegible] M £10

Professors [illegible] c D, F R S Chemistry [illegible] Elementary Biology F [illegible] Medicine R Saundby, M D, and Otto J Kauffmann M D, F R C P Surgery Wm F Haslam, M B, F R C S, and Charles Leedham Green, M B, Ch M F R C S Anatomy Peter Thompson M D Dean of the Medical Faculty Physiology E W Wace Carlier M D Therapeutics Sir R M Simon, M D Forensic Medicine J T J Morrison F R C S Hygiene and Public Health A Bostock Hill, M D Midwifery Thomas Wilson Ch M, M D, F R C S Diseases of Women C E Purslow, M D, M R C P Pathology R F C Leith, F R C P Edin Lunacy and Mental Disease T T Hughes Ophthalmology J Jameson Evans, M D, F R C S

At the University of Birmingham the following Scholarships are awarded —(a) Myers Travelling Studentship of £150, tenable for one year, awarded by vote of committee to M B, Ch B Birm, B Sc candidates, tenable at one of certain German universities, (b) Ingleby Scholarship of £10, awarded to the candidate at Final Examination obtaining highest "first class" marks in the subjects of Midwifery and Disease of Women, (c) Sydenham Scholarship of £42 tenable for three years, award of Council to orphan sons of medical practitioners, (d) Sands Cox Scholarship of £42 tenable for three years, awarded to the candidate, not being more than 19 years of age, taking the [illegible] (e) Dental Scholar- [illegible] subjects [illegible] (i) Four Queen s Scholarships of £10 10s each In the Second and Fourth Examinations the Scholarship is awarded respectively to the student taking the first place and obtaining "first class" marks In the Third Examination the Scholarship is awarded to the student obtaining the highest first-class marks in Pathology and Bacteriology, provided that such student passes at the same examination in the subjects of Materia Medica and Practical Pharmacy In the Final Examination the Scholarship is awarded to the candidate taking the first place in the examination—that is obtaining the greatest aggregate number of marks—provided that in each of the subjects of Medicine, Surgery, and Midwifery he gains not less than 60 per cent of the total available marks (j) George Henry Marshall Scholarship of £10, awarded annually, for the encouragement of Research Work in Ophthalmology and (k) Russell Memorial Prize a prize of books, value about £2, awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University shall pass the best examination in the subject of Nervous Diseases

Clinical Instruction —The medical students of the University receive their clinical instruction by attending the amalgamated practice of the General Hospital and the Queen's Hospital, details of which follow

The clinical instruction of the Birmingham medical students is carried on under the direction of the University Clinical Board The hospitals present an excellent field for clinical work possessing more than 500 beds, treating annually over 8000 in patients and 100,000 out patients The students spend part of their curriculum in each hospital, and thus have every opportunity of acquiring a varied, full, and practical knowledge of their professional work The curriculum is adapted in the first place to meet the needs of the students of the University of Birmingham but it is also well adapted to the requirements of students preparing for the examinations of all other universities and licensing bodies At the General Hospital there are open to the students the following appointments A resident medical officer, elected annually (£100), a resident surgical officer, elected annually and eligible for re election for three years (£100), a resident pathologist elected for six months (£50), three surgical casualty officers, elected annually and eligible for re election (£50), three house physicians and four house surgeons hold office for six months, receiving board, residence, and salaries at the rate of £50 a year, two house surgeons to the gynæcological ophthalmic, and aural departments are elected every six months, receiving board, residence, and a salary of £50 a year, two assistant house surgeons are elected every three months, receiving board, residence, and salaries at the rate of £40 a year, a resident medical officer at the Jaffray Hospital, who is elected annually but is eligible for re election, and who receives £150 a year, and a resident medical assistant at this hospital who is not necessarily qualified, is provided with board and residence and holds office for three months At the Queen s Hospital there are open to the student the following appointments Three house physicians, three house surgeons, and one obstetric and ophthalmic house surgeon who hold office for six months and have salaries at the rate of £50 a year Thirty eight other appointments of varying value are at the City Workhouse and Workhouse Infirmary, at the Birmingham General and Branch Dispensaries at the Birmingham Lunatic Asylums at the City Fever Hospitals, at the Children's Hospital at the Birmingham and Midland Eye Hospital, at the Orthopædic and Spinal Hospital, at the Maternity Hospital, and at the Ear and Throat Hospital.

THE BIRMINGHAM GENERAL HOSPITAL.—The General Hospital contains 342 beds, and of these 327 are in daily use, upwards of 5497 in-patients passing through the wards yearly. There are special wards for children for gynæcological, septic and infectious cases, and special, beds are reserved for eye, ear, and skin cases. Some 67,317 out-patients are treated there annually. The post-mortem department is in a separate building. It consists of a mortuary with a small viewing room, a post-mortem room proper, and laboratories for bacteriology and morbid histology. In addition there are separate rooms in the main building, adjoining the various medical and surgical wards, for clinical pathology, and these are under the direction of special officers. There are four operating theatres, all designed and fitted on the most modern lines. In connexion with the hospital is the Jaffray Suburban Hospital of 56 beds at Gravelly Hill. The arrangements for clinical teaching at this hospital are very thorough. In addition to the clinical teaching given in the wards and out-patient department by the honorary staff medical and surgical tutorial classes are held for senior and junior students, while clinical instruction is given in all the special departments by the gentlemen in charge of them.

Staff:—Consulting Physician: Dr. Robert Saundby. Consulting Obstetric Officer: Dr Edward Malins. Physicians: Sir Robert M. Simon, Dr. T. Stacey Wilson, Dr. T. Sydney Short, and Dr J W. Russell. Surgeons: Mr. Gilbert Barling, Mr. William F. Haslam, Mr. George Heaton and Mr. A. Lucas. Obstetric Physician: Dr. Thomas Wilson. Aural Surgeon and Laryngologist: Dr. F. W. Foxcroft. Physician in Charge of Skin Department: Dr. A. Douglas Heath. Ophthalmic Surgeon: Dr. R. Beatson Hird. Assistant Physicians: Dr. A. Stanley Barnes, Dr William H. Wynn, Dr. J. E. H. Sawyer, and Dr. L. G. Parsons. Assistant Surgeons: Mr. Leonard P. Gamgee, Mr. Frank Barnes, Mr. Seymour Barling, and Mr. E. Musgrave Woodman. Assistant Obstetric Officer: Mr. H. B. Whitehouse. Visiting Pathologist: (Vacant). Anæsthetists: Dr. Sydney Haynes, Dr. W. J. McCardie, and Mr. R H. R. Whitaker. Surgical Photographers and Radiographers: Mr. J. Hall-Edwards and Mr. F. Emrys-Jones. Dental Surgeon: Mr. R H Astbury.

THE QUEEN'S HOSPITAL.—Similar arrangements for clinical teaching are made here, and the material also is excellent Ward and tutorial classes are regularly conducted by the staff, there are daily clinics in the out-patient department, while teaching duties are definitely assigned to the house physicians and house surgeons. There are also special departments for gynæcology and ophthalmology.

Staff:—Consulting Physicians: Sir James Sawyer, Dr. C. W. Suckling, and Dr. A. H Carter. Consulting Surgeons: Mr. Frank Marsh and Mr. Bennett May. Consulting Ophthalmic Surgeon: Mr. Priestley Smith. Physicians: Dr. O. J. Kauffmann, Dr. J. Douglas Stanley, and Dr. J. G Emanuel. Surgeons: Mr. J. T. J. Morrison, Mr. C. A. Leedham-Green, and Mr W. Billington. Obstetric Officer: Dr. C. E. Purslow. Ophthalmic Surgeon: Mr. Wilfrid Allport. Physician for Out-patients: Dr. L G. J. Mackey. Surgeons for Out-patients: Mr. A W Nuthall Mr. B. J. Ward, and Mr. Bertram A Lloyd. Pathologist: Dr. L. Ball Radiographer: Mr. W. Steuart. Anæsthetist: Mr. L. Kirkby Thomas.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—Honorary Consulting Physician: Dr. R. Saundby. Honorary Consulting Surgeon: Mr. D. C. Lloyd-Owen. Surgeons: Mr. E. W. Wood-White, Mr. J. Jameson Evans, and Mr. W. H. Fulford Eales. Dental Surgeon: W. Madin, B.D.S. Anæsthetist: Dr. S. W. Haynes. Radiographers: Mr. Hall-Edwards and Mr. Emrys-Jones. This hospital possesses 110 beds, and there is an average daily attendance of out-patients of over 270. This institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an ophthalmic hospital at which clinical instruction in ophthalmology may be received. Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations.

UNIVERSITY OF LIVERPOOL.

The student must pass either (1) the University Matriculation Examination, or (2) the Final Examination for Graduation in Arts of any university in Great Britain and Ireland, or (3) the Matriculation Examination of the University of London, or (4) the Higher Certificate Examination of Oxford and Cambridge Joint Board, or (5) the Senior Local Examination of Oxford or Cambridge, or (6) some other examination of equal standard accepted by the Joint Matriculation Board. The course of professional study subsequent to passing [illegible] been registered as a medical student, extends over five years. The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Hygiene (M.H.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 21 years on the day of graduation. At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognised for this purpose by the University. Candidates must pass three examinations entitled respectively: the First Examination, the Second Examination, and the Final Examination. The fee is £5 for each examination. The subjects of the First Examination are: (1) Chemistry, Inorganic, Organic, and Physical; (2) Biology (Zoology and Botany); and (3) Physics. The examination is divided into two parts—namely, (1) Chemistry and Physics, and (2) Biology; and candidates may present themselves in these parts separately. The subjects of the Second Examination are (*a*) Anatomy and Physiology (including Physiological Chemistry and Histology), and (*b*) Materia Medica, Pharmacy, and Pharmacology. Candidates may present themselves in (*a*) or (*b*) separately. The subjects for the Final Examination are: (1) General Pathology and Morbid Anatomy; (2) Therapeutics; (3) Forensic Medicine and Toxicology; (4) Public Health; (5) Obstetrics and Diseases of Women; (6) Surgery, Systematic, Clinical, Operative, and Practical, including Ophthalmology; and (7) Medicine, Systematic and Clinical, including Mental Diseases and Diseases of Children. The Final Examination is divided into three parts, the first consisting of subject (1), the second of subjects (2), (3), and (4), the third of subjects (5), (6) and (7) Candidates may present themselves in these parts separately. Candidates for the third part must have completed the fifth year of medical study.

Degrees of Doctor of Medicine and Master of Surgery.—No candidate will be admitted to the degrees of Doctor of Medicine or Master of Surgery unless he has previously received the Degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examinations for those degrees. Candidates for the degree of Doctor of Medicine are required to present a dissertation embodying the results of personal observations or original research, either in some department of medicine or of some science directly relative to medicine: provided always that original work published in scientific journals or separately shall be admissible in lieu of, or in addition to, a dissertation specially written for the degree. No candidate shall be admitted to the degree unless his application after report from the Faculty of Medicine shall have been accepted by the Senate. Candidates may be required to undergo examination in any subject connected with the dissertation. The subjects of examination for the degree of Master of Surgery are: (1) Surgical Anatomy, (2) Surgery, (3) Operative Surgery, (4) Clinical Surgery, (5) Ophthalmology, and (6) Pathology and Bacteriology. [illegible]

Diploma in Ophthalmic Surg[illegible] Surgery (D.Ch.O.) has been [illegible] possess a qualification or Diploma in Medicine which entitles to registration in the United Kingdom. The examination for the Diploma will be held twice a year, at the end of the summer and autumn terms. Candidates before presenting themselves for examination and subsequent to having obtained a registrable qualification or diploma, must have attended: (*a*) a three months' course of study in the anatomy, physiology, and pathology of the eye in the University; (*b*) a course of instruction extending over not less than three terms in an ophthalmic clinic recognised by the University; and (*c*) a course of lectures on the diagnosis and treatment of diseases of the eye during one term. The subjects of examination are: (1) The anatomy and histology of the visual organs and centres; (2) the physiology of vision; (3) physiological optics; (4) bacteriology in relation to diseases of the eye; (5) the morbid

anatomy of diseases of the eye, (6) the diagnosis and treatment of diseases of the eye,
tion of errors of refraction.
£5 5s, and for each subseq
fees for courses of instruction amount to 25 guineas
F R S
Physio-
L R
rdman,
D Sc, F R S Botany R J H Gibson, M A Anatomy: A Melville Paterson, M D Medicine T Robinson Glynn, M D Surgery Rushton Parker, F R C S Regional Surgery W Thelwall Thomas Ch M, F R C S Pathology Ernest Glynn, M A, M D Midwifery and Gynæcology H Briggs M D Therapeutics J H Abram, M D Hygiene E W Hope, D Sc Forensic Medicine R J M Buchanan, M D Tropical Medicine J W W Stephens, B A, M D Tropical Sanitation Major Sir Ronald Ross, C B, F R S Bio Chemistry B Moore, D Sc, F R S Entomology R Newstead, M.Sc, A L S, F R S Bacteriology J M Beattie, M A, M D Parasitology Vacant

At this University the following Scholarships and Fellowships are awarded —(a) and (b), Robert Gee Entrance Scholarships two annually, of £25 each, tenable for two years, Joint Matriculation Board Examination held in July, open to First M B Course Students, (c) Lyon Jones Scholarship, No 1, of £21 per annum, tenable for two years, Competitive Examination among Junior Students in First M B Subjects, Perpetual Course at the University, (d) Lyon Jones Scholarship No 2 of £21, Competitive Examination among Senior Students in Anatomy, Physiology Pharmacology, and Materia Medica, (e) Derby Exhibition of £15 Competitive Examination among Fourth or Fifth year Students in Clinical Subjects, and Clinical School Exhibition of £15 annually for Fourth- or Fifth-year students, (f) University Scholarship of £25 for one year,

by vote of Faculty to Student after graduation, for Teaching and Original Research, (h) Gee Fellowship Anatomy of £100, for one year, for Teaching and Research, (i) Alexander *Fellowship, Pathology, of £100, for one year, for Research* in Pathology, as are also the following four Fellowships, (j) Johnston Colonial Fellowship Pathology, Bacteriology, and Bio Chemistry, of £100 for one year, (k) John W Garrett International Fellowship Physiology, Pathology and Bio Chemistry, of £100 for one year, (l) Thelwall Thomas Fellowship, Surgical Pathology, of £100, for one year, (m) Ethel Boyce Fellowship in Gynæcological Pathology, of £100, for one year, the last two are awarded by *vote of Faculty to graduate and are for Research* The Torr Gold Medal in Anatomy the George Holt Medal in Physiology the Kanthack Medal in Pathology, the Robert Gee Book Prize of the value of £5 for Children's Diseases Communications should be addressed to the Dean, Mr. K. W Monsarrat The University, Liverpool

Medical School Buildings—Spacious and well equipped class rooms and laboratories have been erected for the practical study of all the important scientific subjects which form the basis of medicine Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation All the laboratories and class rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle There are the Johnston Laboratories for Experimental Medicine, Bio Chemistry, and Tropical Medicine, the Medical School for Anatomy Surgery, Toxicology and Ophthalmology, and the Thompson Yates Laboratories for Physiology and Pathology

Clinical Instruction—The Clinical School of the University now consists of four general hospitals—the Royal Infirmary, the David Lewis Northern Hospital the Royal Southern Hospital and the Stanley Hospital, and of five special hospitals—the Eye and Ear Infirmary, the Hospital for Women, the Infirmary for Children St Paul s Eye Hospital, and St George's Hospital for Skin Diseases These hospitals

distance are readily reached by the tramway service of the
iod of hospital practice extends over the last
medical study. During the first two years
no student will be permitted to change his attendance from one general hospital to another except at the commencement of an academic term It is a regulation of the school that not more than five of the six terms of these two years shall be spent at any single general hospital. During the final year of hospital practice a student is permitted to attend the practice of all the general hospitals without restriction The regulations demand only that his attendance shall be regular and to the satisfaction of the Hospitals' Board There are a large number of appointments to house physicianships and surgeonships both at the general and special hospitals which are open to qualified students of the school These appointments (20) in most cases carry salaries ranging from £60 to £100 per annum Applications for further information regarding the Medical Curriculum should be addressed to the Dean of the Faculty of Medicine

School of Veterinary Medicine—There is a school of Veterinary Medicine in connexion with the University which provides full courses of instruction for the M R C V S A diploma in Veterinary Hygiene is also granted by the University

Public Health Department—This is located in a separate building known as Ashton Hall, in which full courses of instruction are given to students for the Diplomas and Degrees of the University and of other Examining Boards (see p 690)

Special Diplomas—The University has instituted diplomas in Anatomy Bacteriology Bio Chemistry, and Parasitology A special course of study of three terms duration is required *in the subject chosen for the diploma and allied subjects*

School of Pharmacy—Complete courses of instruction are provided adapted to the requirements of candidates preparing for either the Minor or Major Examinations of the Pharmaceutical Society of Great Britain

Prospectuses and further information may be had on application to the Dean of the Faculty of Medicine, University of Liverpool

Staff of the Royal Infirmary—Consulting Physicians Dr *T R Glynn Dr R Caton and Sir James Barr* Physicians Dr T R Bradshaw, Dr J Hill Abram, and Dr R J M. Buchanan Assistant Physicians Dr John Hay, Dr. W Barnett Warrington and Dr Pantland Hick Consulting Surgeons Mr Rushton Parker and Mr F T Paul Surgeons Mr R A Bickersteth, Mr W Thelwall Thomas and Mr Litler Jones Assistant Surgeons Mr R E Kelly, Mr F A G Jeans, and Mr H F Wool-
T B Grimsdale
W B *Blair Bell*
n Surgeon to the
Physician to the
ital Surgeon Mr
st Dr Benjamin
Moore Bacteriologist Dr E E Glynn Anæsthetists Mr W Fingland, Mr F W Bailey, Mr H Armstrong, and Mr A J O Leary

Staff of the David Lewis Northern Hospital—Physicians Dr T Bushby and Dr *John Owen* Consulting Surgeons: Mr W M Campbell, Mr C Puzey and Mr Damer Harrisson Surgeons Mr R W Murray, Mr K W. Monsarrat, and Mr G C E Simpson Ophthalmic Surgeon Mr A N Walker Surgeon to the Orthopædic Department Mr W H Broad Dental Surgeon: Mr F L Councell Pathologists, Dr H L Murray and Dr J Owen Anæsthetists Mr R Stevenson, Dr H J. Knox and Mr A S McPherson Medical Tutor (vacant) Surgical Tutor Mr R O Knowles

Staff of the Royal Southern Hospital—Consulting Physician Dr W Williams Consulting Surgeons Mr Robert Hamilton and Mr W Alexander Consulting Bacteriologist Professor J M Beattie Honorary Physicians Dr C J Macalister and Dr J L Roberts. Honorary Surgeons Mr. R Jones Mr G P Newbolt, and Mr Douglas Crawford Honorary Assistant Surgeon Mr T R W Armour and Mr O H Williams Honorary *Dermatologist* Dr F H Barendt Honorary Ophthalmic Surgeon Mr R J Hamilton Honorary Laryngologist: Dr W Permewan Radiologist Dr D Morgan Honorary Dental Surgeon Mr I Osborn Anæsthetists Dr F M Gardner Medwin Dr W J Bennett Jones, Dr G F R Smith, and Dr T E Jones.

Staff of the Stanley Hospital.—Consulting Physician: Dr. R. I. Richardson. Consulting Ophthalmologist: Mr. K. A. Grossmann. Physicians: Dr. A. G. Gullan and Dr. J. Murray Bligh. Surgeons: Mr. F. C. Larkin and Mr. A. J. Evans. Gynæcology: Miss F. Ivens, M.B., M.S. Ophthalmic Physician: Dr. J. Grimshaw. Consulting Laryngologist: Dr. J. E. McDougall. Dentist: Mr. J. Woodford Williams.

THE VICTORIA UNIVERSITY OF MANCHESTER.

Four degrees in Medicine and Surgery are conferred by the University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

All candidates for degrees in Medicine and Surgery are required to pass an examination called the Matriculation Examination (Faculty of Medicine), or to have passed such other examination as may be recognised by the University for this purpose.[1]

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Before admission to the degree of M.B. or Ch.B. candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the First M.B. Examination. All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery are required to satisfy the examiners in the several subjects of the following examinations: the First Examination, the Second Examination, the Third Examination, and the Final Examination.

The First Examination.—The subjects of examination are as follows:—(1) Inorganic Chemistry and Physics; (2) Biology; and (3) Elementary Organic Chemistry and Bio-Chemistry. Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above-named subjects. The Examination is divided into three parts: Part 1, Inorganic Chemistry and Physics; Part 2, Biology; Part 3, Elementary Organic Chemistry and Bio-Chemistry; and the candidates may pass in these parts separately under certain conditions.

The Second Examination.—The subjects of examination are as follows:—(1) Anatomy; (2) Physiology, including Physiological Chemistry and Histology. Candidates may pass in (1) and (2) separately under certain conditions.

The Third Examination.—(1) Pathology; (2) Pharmacology and Therapeutics; (3) Hygiene. These subjects may be taken separately under certain conditions.

The Final Examination.—The subjects of examination are as follows:—(1) Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children); (2) Surgery, Systematic, Clinical, and Practical; (3) Obstetrics and Gynæcology (including Clinical and Practical); (4) Forensic Medicine (including an Oral Examination). These subjects may be taken separately under certain conditions.

Candidates for the Final Examination must have completed the fifth year of medical study.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates may elect either (1) to present an original dissertation; or (2) to undergo an examination. The dissertation must embody the results of personal observation or original research, either in some department of medicine or of some science directly relative to medicine. The examination, which will be partly written, partly practical, is in the Principles and Practice of Medicine, in Pathology, and in some other subject to be selected by the candidate.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. The subjects of examination are as follows: (1) Surgical Anatomy; (2) Surgery; (3) Operative Surgery; (4) Clinical Surgery; (5) Ophthalmology; and (6) Pathology and Bacteriology.

Professors—Physics: E. Rutherford, D.Sc., LL.D., F.R.S. Chemistry: H. B. Dixon, M.A., F.R.S. Organic Chemistry: Arthur Lapworth, D.Sc., F.R.S. Zoology: S. J. Hickson, D.Sc., F.R.S. Botany: F. E. Weiss, D.Sc. Cryptogamic Botany: W. H. Lang, M.B., B.Sc., F.R.S. Physiology: W. Stirling, M.D., LL.D., D.Sc. Clinical Medicine: E. S. Reynolds, M.D., B.Sc., F.R.C.P. Anatomy: Grafton Elliot Smith, M.A., M.D., F.R.S. Materia Medica: R. B. Wild, M.D. Public Health and Bacteriology: A. S. Delépine, M.B., C.M., M.Sc. Pathology: A. E. Boycott, B.Sc., M.A., D.M., B.Ch. Systematic Medicine: George R. Murray, M.A., M.D. Systematic Surgery: J. W. Smith, M.B., C.M., F.R.C.S. Clinical Surgery: William Thorburn, B.Sc., M.D., B.S., F.R.C.S. Obstetrics and Gynæcology: Archibald Donald, M.A., M.D., M.R.C.P. Forensic Medicine: William Sellers, M.D., M.R.C.S., D P.H.

Communications should be addressed to the Registrar, The University, Manchester.

Scholarships, Fellowships, and Prizes.—At this University there are 22 Foundation Scholarships, 12 Exhibitions, five being for subjects connected with medical study, a Surgical Prize, a Fellowship, Research Fellowships in Public Health, and Honorary Research Fellowships. 13 Scholarships are Entrance Scholarships, three are Medical, and there are one each for Surgery, Biology, Physiology, and Diseases of Children, and one General Medical and Surgical. Three of the Exhibitions are for Physiology, one for Anatomy, and one for French and German. The Surgical Prize, named "The Dumville," is awarded for the subjects of Systematic, Practical, and Operative Surgery, Surgical Anatomy, and Surgical Pathology, £15. The Leech Fellowship (£100) is for the encouragement of study and research, and is open to persons who have graduated M.B., Ch.B. in the University. The Honorary Research Fellowships, tenable for two years, conferring the right of free use of the laboratories, are awarded generally in October on application, with evidence of capacity for independent investigation.

The following entrance scholarships are offered for award to persons of either sex proposing to enter a medical course of study at the University:—Seaton—One of £40, tenable for two years. Subjects: Greek and Latin Translation at sight, and Prose Composition. Credit given for knowledge of Mathematics (Geometry and Algebra); Elements of English Language, Literature, and History; French and German. Rogers.—One of £40, tenable for two years. Subjects as in Seaton. Dalton.—Two of £40, tenable for two years. Subjects: Geometry (Euclid I.—IV., and VI., or the subjects thereof); Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles); Elementary Analytical Geometry; Conic Sections. Credit given for knowledge of Classics, Elements of English Language, Literature, and History; French and German. Cartwright.—£35 per annum, tenable for three years. Subjects as in Dalton. Dreschfeld Memorial—£30, tenable for one year. Subjects: those of July Matriculation Examination. Hulme.—£35, tenable for three years. Subjects: English Language (Grammatical Structure and Outlines of its History); English Literature (an essay on some subject of English literature); and Modern History (Outlines of English History and Geography); with at least two of the following: Latin (Translation at sight, Grammar, and Easy Composition); Greek (ditto); French (ditto); German (ditto). Credit given for knowledge of Mathematics (Geometry and Algebra). Dora Muir.—£25 per annum, tenable for three years (open to women only). Candidates may select such of the subjects as they desire from amongst those set for the other Entrance Scholarships. James Gaskill.—£35, tenable for two years. Subjects: Mathematics, Geometry (the substance of Euclid I.—IV. and VI.), Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles), Elementary Mechanics and Physics, Chemistry. Credit given for knowledge of Classics, Elements of English Language, Literature, and History, and French and German. Manchester Grammar School.—£25 per annum, tenable for three years. The examinations for all these scholarships are held in the month of May. Kay-Shuttleworth (Sir James Phillips).—£30 per annum, tenable for three years. Subjects: Mathematics, Elementary Mechanics and Physics, Chemistry. Entrance Scholarships in Medicine.—One or more Scholarships in each year will be offered for proficiency in Arts or Science. The Scholarships are of the value of £100 each, which will be set off against fees as follows: £60 against the University class fees and £40 against the Infirmary fees.

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[1] 1. The Board will grant exemption from the Matriculation Examination to graduates of any university of the United Kingdom, provided Latin has formed part of one of the degree examinations. 2. For particulars of the conditions under which holders of Certificates from the Universities of Oxford, Cambridge, and London are entitled to exemption, the Calendar of the Joint Matriculation Board should be consulted. The fee for registering external Certificates when exemption is granted is £1.

The Platt Biological Scholarship of £50 for one year is awarded to the candidate who shows the most promise of ability for prosecuting original research in Zoology and Botany, and the holder is to devote his time to research in Zoology or Botany. The Robert Platt Physiological Scholarship of £50 for two years, with the subjects of Physiology and Comparative Anatomy, is open to candidates whether or not previously students of the University. There are two Dauntesey Medical Scholarships of £35 each for one year, [illegible] Chemistry. These [illegible] s preparing for a [illegible] tended lectures or laboratory courses on Human Anatomy or Physiology, or a purely medical or surgical course in the University or in any other medical school in the United Kingdom. Candidates must not be more than 25 years of age on Oct. 1st of the year of competition. Scholars must immediately on election enter for a full course of medical studies. The subjects of the Turner Scholarship of £20, for students who have completed a full course of medical study in the University, are: Medicine, Pathology (written and practical), Obstetrics, Practical Surgery, Ophthalmology, Forensic Medicine, and Public Health. The John Henry Agnew Scholarship of £30, awarded on the results of an examination, partly written and partly clinical, on Diseases of Children, Medical and Surgical, is open for competition annually to all students in the medical department who have pursued a regular course of medical study in the University extending over a period of not less than four years or more than six years and have attended the course of lectures on Diseases of Children. The Ashby Memorial Scholarship, value £100, is open to duly qualified medical men and women who intend to pursue research in diseases of children.

The Professor Tom Jones Memorial Surgical Scholarship of £100 for one year is awarded on the result of evidence submitted by the candidate who must have either graduated in the University or have obtained the Diploma of the Conjoint Colleges. The Graduate Scholarship in Medicine of the value of £25 to £50 for one year is awarded on the results of the Final Examination for M.B., Ch.B. The Theodores Exhibition of £15 for one year has the subjects of French and German, and the successful candidate is required to enter for a regular University course. There are two Robert Platt Exhibitions of £15 each for first and second-year students in physiology, and the Sydney Renshaw Exhibition of £15 is for second-year students in physiology. The Professor Tom Jones Exhibition in Anatomy, value £25, is for first-year students in anatomy. The Dumville Surgical Prize of £15 is awarded after examination in Systematic, Practical, and Operative Surgery, Surgical [illegible] old medal is awarded [illegible] M D. [illegible] ool is located in a large building, which forms a part of the University. It is provided with large dissecting-rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology, and Materia Medica, a large extension of the school buildings was made in 1895. The greater part of the new buildings is devoted to the departments of physiology, pathology, toxicology, anatomy, and public health. The physiological department occupies more than half of the new buildings, and includes a large lecture theatre, accommodating 350 students, with preparation and diagram rooms adjacent to it, and a research laboratory fitted with the necessary apparatus for the use of advanced students, research scholars, or practitioners of medicine undertaking the investigation of some special subject. In the new pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. In the toxicological department there is a large laboratory, capable of accommodating 50 students, lighted from both sides and also from the roof, completely equipped with all that is necessary for the practical teaching of toxicology; also a small laboratory for private research, containing the apparatus and fittings necessary for investigations in toxicological chemistry. In the public health department suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology. A large room is provided in the new [illegible] odels, plans, and [illegible] struction of the [illegible] works on State [illegible] ary engineering. In addition, a large lecture theatre for general purposes, accommodating 250 students, has been provided, and the existing accommodation for students is supplemented by the provision of a larger common room.

Clinical Studies.—The clinical and practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary, as well as in a fever hospital, a lunatic asylum, and a convalescent home. Medical and Surgical Clinical Classes are conducted in the Infirmary, which in the new buildings together with the associated hospitals at Cheadle will contain 1158 beds, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary.

Public Health.—The regulations with regard to the Degrees in Sanitary Science will be found under the special section on p. 690.

Clinical Instruction.—THE MANCHESTER ROYAL INFIRMARY.—The New Royal Infirmary has been built on the pavilion system, near the University, between the recently enlarged Eye Hospital and the new St. Mary's Hospital for Women and Children, and has accommodation for 592 beds. Of these, 52 are allotted to the Special and Emergency Departments; the 540 remaining beds are allocated as follows: 240 for medical practice and 300 for surgical practice (180 for men and 120 for women and children). The medical side consists of five units, each unit having a testing room for the scientific investigation of morbid products and a class-room. The surgical beds are also arranged [illegible] tion theatre, [illegible] and apparat [illegible] these units four on each side are already occupied. The fine educational block provides very handsomely for the wants and comforts of the students, there being separate suites of rooms for the men and the women, and also a large common reading room, a lecture theatre, and a museum. The present annual average number of in-patients is 8600, of out- and home-patients 41,000, and the list of casualties in the accident room has averaged 24,000 per annum. About 6000 operations are performed annually in the operation theatres. Associated with the Infirmary are: (1) the Convalescent Hospital at Cheadle, containing 136 beds; (2) the Royal Lunatic [illegible] branches 430 [illegible] Piccadilly for [illegible] Hospitals thu [illegible] management. Women students are admitted to the practice of the Infirmary on [illegible]

Fees.—Medical [illegible] 5 guineas; six months, 8 guine [illegible] full period required by the Exa [illegible]

In addition to the list of scholarships given under the general heading, "The Victoria University of Manchester," two Entrance Scholarships in Medicine of the value of £100 each are offered annually by the Council of the Manchester University and the Medical Board of the Manchester Royal Infirmary for proficiency in Arts and Science subjects respectively. The Bradley Memorial Scholarship in Clinical Surgery, value £20, is offered annually in the Summer Session. Gentlemen are eligible who are in their fifth or sixth year of study, have completed their dresserships, and have spent two years in clinical work at the Manchester Royal Infirmary. One Medical and one Surgical Clinical Prize of the value of 6 guineas are offered annually. (The other scholarships and prizes are in the College Syllabus.) Annual appointments may be held by those who have attended the practice of the Infirmary: a

Surgical Registrar (£75); a Pathological Registrar (£100); a Medical Registrar (£75); a Surgical Tutor (£30); a Director and Assistant Director of the Clinical Laboratory (£200 and £75); Three Assistant Medical Officers (£35); Three Assistant Surgical Officers (£35 each); Five Anæsthetists (£50); a Medical Officer for home patients (£150); and a Medical Officer for Radiography and Electricity Department (£100). The following resident appointments are also made annually: Resident Medical Officer (£150); Resident Surgical Officer (£150); Accident Room House Surgeon (£100); Resident Medical Officer at the Convalescent Hospital at Cheadle (£150); two Medical Officers at the Central Branch, £100 each. An Assistant Medical Officer at the Convalescent Hospital is appointed every six months at a salary of £80 per annum. The following unpaid appointments are open to those who have attended the practice of the Infirmary:—House Surgeons: Two Senior and Two Junior House Surgeons are appointed every three months for a term of six months. House Physicians: Ten House Physicians are appointed during each year for a term of six months. Also every six months a house surgeon is appointed to the Gynæcological, Ear and Throat Departments. The House Surgeons and House Physicians and Resident Assistant at Cheadle must possess registrable qualifications.

Staff.—Consulting Physicians: Dr. Graham Steell, Dr. Judson S. Bury, and Dr. A. T. Wilkinson. Physicians: Dr. E. S. Reynolds, Dr. G. R. Murray, Dr. R. T. Williamson, Dr. E. M. Brockbank, and Dr. E. N. Cunliffe. Assistant Physicians: Dr. F. Craven Moore, Dr. A. Ramsbottom, and Dr. E. B. Leech. Pathologist: Dr. A. E. Boycott. Consulting Surgeons: Mr. Walter Whitehead, Mr. F. A. Southam, and Mr. G. A. Wright. Surgeons: Mr. W. Thorburn, Mr. J. W. Smith, Mr. A. H. Burgess, and Mr. J. H. Ray. Assistant Surgeons: Mr. E. D. Telford, Mr. C. Roberts, Mr. P. R. Wrigley, and Mr. H. H. Rayner. Anæsthetist: Mr. Alexander Wilson. Consulting Obstetric Physician: Dr. Lloyd Roberts. Gynæcological Surgeon: Dr. A. Donald. Assistant Gynæcological Surgeon: Dr. W. E. Fothergill. Ophthalmic Surgeon: Dr. A. Hill Griffith. Aural Surgeon: Dr. William Milligan. Assistant Aural Surgeon: Mr. F. H. Westmacott. Dental Surgeon: Mr. W. A. Hooton. Resident Medical Officer: Dr. J. F. Ward. Resident Surgical Officer: Mr. Howard Buck. Pathological Registrar: Dr. W. B. Anderton. Medical Registrar: Dr. C. E. Lea. Surgical Registrar: Mr. E. E Hughes. Director of the Clinical Laboratory: Dr. G. E. Loveday. Assistant Director of the Clinical Laboratory: Dr. J. Walker. Anæsthetists: Dr S R. Wilson, Mr. Edward Moir, Dr E. Falkner Hill, Dr. T. Coogan, and Dr. G. M. Benton. Assistant Medical Officers: Dr. Melland, Dr. Tylecote, and Dr. Core. Assistant Surgical Officers; Mr. W. R. Douglas, Mr. J. P. Buckley, and Mr. W. H. Hey. Surgical Tutor: Mr. W. R. Douglas. Medical Officer for Home Patients: Dr. George Ashton. Medical Officer for Radiography and Electricity Department: Dr. A. E Barclay. Director of Cancer Research Laboratory: Dr. W. J. Reid. Resident Medical Officer of the Convalescent Hospital, Cheadle: Mr. G B. Warburton. Resident Superintendent of the Royal Lunatic Hospital at Cheadle: Mr. W. Scowcroft. Medical Officers, Central Branch: Dr. A. E. Woodall and Mr. J C. Jefferson. General Superintendent and Secretary: Mr. Walter G. Carnt.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, Gartside-street, Manchester, and St. Anne's-on-the Sea.—The hospital contains 138 beds and 26 in the Convalescent Home, St. Anne's-on-the Sea The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. Out-patients are seen daily at 9 A.M. at the new Out-patient Department, Gartside-street, Manchester. Consulting Physician: Dr. Hutton. Physicians: Dr. Heywood, Dr. Lapage, and Dr. Ashby. Surgeons: Mr. C. Roberts, Mr. H. H. Rayner, and Mr. Wilson H. Hey. Honorary Consulting Surgeons: Mr. G. A. Wright and Mr. J. Howson Ray. Honorary Surgeon for Throat, Nose, and Ear Diseases: Mr. F. H. Westmacott. Pathologist: Dr. W. Mair. Anæsthetists: Mr. E. Moir, Mr. S. R Wilson, and Dr. Barrow. Honorary Dental Surgeon: Mr. E. A. T. Green. Resident Medical Officers: Mr. E. Grey and Mr. A. G. Bryce. Medical Officers at the Dispensary: Dr. W. A. B. Young, Dr. Elsie Brown, and Mr. J. A. Dowling. Assistant Medical Officer: Dr. Elsie Brown. Medical Officer, X Ray Department: Dr. W. J. S. Bythell. During 1912 there were 2958 in-patients, and 30,591 new out-patients were under treatment at the Dispensary, and there were 104,274 attendances made by out-patients. Secretary: Mr. H. J. Eason.

THE MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road, Manchester.—The hospital contains 70 beds. Out-patients are seen daily from 8.30 to 10 A.M. Honorary Consulting Physicians: Dr. W. N. Maccall and Dr. T. C. Railton. Honorary Consulting Surgeons: Mr. Frederick A. Southam and Dr. A. W. W. Lea. Honorary Physician for Women: Dr. T. Arthur Helme. Honorary Surgeon for Women: Mr. Harold Clifford. Honorary Physician: Dr. J. J. Cox. Honorary Physicians for Children: Dr. C. H. Melland and Dr. A. A Mumford. Honorary Assistant Surgeon for Women: Dr. G. W. Fitz-Gerald. Honorary Surgeon for Children: Mr. R. Ollerenshaw. Honorary Assistant Physician for Children: Dr. A. C. Sturrock. Honorary Ophthalmic Surgeon: Dr. H. H. McNabb. Honorary Anæsthetists: Mr. G. A. Barrow, Dr. C. H. Lee, and Dr. D. H. Paul. Pathologist: Dr. H. R. Clarke. Assistant Medical Officers: Mr. R. W. Walsh and Dr. R. C. Holt. Honorary Dentist: Mr. W. A. Hooton. House Surgeon: Dr. N. Purcell.

UNIVERSITY OF LEEDS.

Candidates presenting themselves for Matriculation in the Faculty of Medicine must pass an examination in English (Language or Literature) and English History, Mathematics and Latin, and in two of eight optional subjects. Exemption from the matriculation examination is granted to graduates of any university of the United Kingdom provided Latin has formed part of one of the degree examinations.

Four degrees in Medicine and Surgery are conferred—viz.: Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), also Degrees and Diplomas in Dental Surgery and Diplomas in Public Health and Psychological Medicine.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery are required to present certificates showing that they will have attained the age of 21 years on the day of graduation, and that they have attended courses of instruction approved by the University extending over not less than five years, two of such years at least having been passed in the University subsequently to the date of passing the First Examination. Candidates must also satisfy the examiners in the several subjects of the following examinations entitled respectively: the Matriculation Examination, or such other examination as may have been recognised by the Joint Matriculation Board in its stead; the First Examination; the Second Examination; and the Final Examination.

The First Examination.—The First Examination consists of: Part I., Physics and Chemistry; Part II., Biology. Candidates will be allowed to pass the two parts separately.

The Second Examination.—The Second Examination consists of: Part I., Anatomy and Physiology; Part II., Materia Medica and Pharmacy. Candidates will be allowed to pass the two parts separately.

The Final Examination.—The Final Examination consists of: Part I., Pathology and Bacteriology. Part II., Forensic Medicine and Public Health. Part III., Medicine: Systematic and Clinical, including [illegible] and Diseases of Children; Surgery: Systema[illegible] tical; [illegible] and Obstetrics and Gynæcology [illegible] Practical; Pharmacology and Therapeutics. Candidates will be allowed to pass Parts II. and III. separately or together, and they may present themselves for examination in Part I. at the end of the tenth term.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has [illegible] they passed [illegible] the examination for those degrees. [illegible] of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observations or original research, either in some department of medicine or of some science directly related to medicine; provided always that original work published in scientific journals or in the Proceedings of learned societies, or separately, shall be admissible in lieu of, or in addition to, a dissertation specially written for the degree Candidates will be required to write a short extempore essay on some topic connected with medicine and to answer questions on the history of medicine They will also be examined orally on the dissertation or other work submitted Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide No candidate will be admitted to the degree unless his application after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate

Degree of Master of Surgery —Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees Every candidate is also required to furnish certificates of attendance in accordance with the regulations of the University The subjects of examination are as follows Surgical Anatomy, Surgery, Operative Surgery, Clinical Surgery, Ophthalmology Patholc

Professors—Physics (mistry A Smithells B Sc F (J B Cohen B Sc Zoology W Garstang, M A Botany J H Priestley Anatomy J K Jamieson, M B Physiology and Histology De Burgh Birch, M D Pathology A S Grünbaum M D Clinical Medicine A G Barrs, M D Medicine T W Griffith, M D Surgery R L Knaggs F R C S Clinical Surgery Sir B G A Moynihan, F R C S Obstetrics J B Hellier M D Public Health J S Cameron M D Therapeutics H J Campbell M D Forensic Medicine F W Eurich, M D Mental Diseases J S Bolton M D

Diploma in Psychological Medicine —The University grants a Diploma in Psychological Medicine The examination which is held twice in each year—namely in June and December—is in two parts and is written oral and practical Candidates before entering for the first part of the examination must produce evidence of (A) (1) being graduates in Medicine of at least one year's standing, (2) having uction on the subjects least after graduation, or Assistant Medical Officer in an Asylum recognised for this purpose for a period of at least six months, (4) having attended a course of systematic instruction on the normal and morbid anatomy of the brain for a period of six months in the recognised laboratories of the University

(2 3 and 4 may be taken concurrently and as evidence of (4) must be produced a laboratory notebook record of practical work which has been regularly inspected and signed by a *recognised teacher) or of* (B) (1) having acted as Assistant Medical Officer in an Asylum of not less than 500 beds for a period of at least two years, (2) having attended a course of systematic instruction on the normal and morbid anatomy and histology of the brain for a period of six months in the recognised laboratories of the University (as evidence of this must be produced a laboratory notebook record of practical work which has been regularly inspected and signed by a recognised teacher), (3) in addition to the laboratory work under (2) or in lieu of three months thereof candidates may submit a dissertation which must embody the results of personal observations or original research in relation to psychological medicine, provided always that original work published in scientific journals or in the Proceedings of learned societies or separately shall be admissible in lieu of or in addition to a dissertation specially written for the diploma

Subjects of Examination —Part I (i) The Development, n (Human d Morbid Practical cial refer)Clinical Psychiatry Asylum Administration and the Medico Legal Aspects of Insanity

Candidates in order to pass must satisfy the examiners in the clinical part of the examination They may present themselves for Parts I and II separately or at the same time provided that no candidate be allowed to pass in Part II unless he has already passed in Part I No candidate's name will be published unless he has satisfied the Examiners in both parts of the examination

Fees —The fee for examination is £5 5*s*, and must be paid at least 14 days before the commencement of the examination For any subsequent examination the fee in each part will be £1 11*s* 6*d*

At the University of Leeds (School of Medicine) there are two Scholarships and six Prizes The Entrance Scholarship, admitting to a complete course of lectures and practical classes at the Leeds School is awarded on the results of the Joint Matriculation Board Examination held in July. The Infirmary Scholarship admitting to a complete course of hospital practice and clinical lectures at Leeds Infirmary, is awarded on the results of the First M B Examination of the University of Leeds The Hardwick Prize of £10 is awarded after competitive examination in Clinical Medicine among Clinical Clerk Students of two years' standing The McGill Prize of £10 is awarded after competitive examination among advanced surgical students in Clinical Surgery The Thorp Scholarship of about £25 is awarded annually to a student or graduate who undertakes research in some subject in Public Health or Forensic Medicine

Clinical Instruction —THE LEEDS GENERAL INFIRMARY, in connexion with this medical faculty has accommodation for 520 in patients including 88 beds at branch hospitals in the country During the last year 8346 in patients and 55 474 out patients were treated Clinical teaching takes place daily in the wards, and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons There are Medical Surgical Ophthalmic, Aural Electro therapeutic and Radiographic Departments in each of which special instruction is imparted to students A Gynæcological and Extern Obstetric Department in which there were 410 confinements, together with Laryngeal and Skin Clinics are in operation. Several valuable prizes are given at the end of each session The following appointments at the Infirmary are annually open to students (for some of them however a registered legal qualification is required) Non resident clinical pathologist £300 assistant clinical pathologist £150, medical registrar, £25, surgical registrar £25, senior anæsthetist, £50, 7 anæsthetists £25 Resident medical officer, £150, surgical officer £150, casualty officer £125; ophthalmic, £100 aural officer £100 These appointments are made annually and holders are eligible for re election Resident medical officer to the Ida Hospital, for six months honorarium £30 Obstetric officer, £50, ophthalmic house surgeon £50, 6 house physicians, for six months 7 house surgeons 4 for 12 months, 24 physicians clerks for three months 24 surgeons dressers, for six months, 24 ophthalmic and aural surgeons' dressers for three months, 24 gynæcological and obstetric clerks for three months 24 maternity clerks for one month, 24 assistant physicians clerks for three months; 8 dermatological clerks for three months 24 assistant surgeons dressers for three months, 24 dressers in the casualty room, for three months, 48 post mortem room clerks for three months, 24 clinical clerks for preliminary instruction for three months, 8 laboratory assistants for three months There are appointments open to students in other medical institutions in the town and also in the West Riding (Lunatic) Asylum

The Public Dispensary the Hospital for Women and Children, the Fever Hospital the Maternity Home and the West Riding Lunatic Asylum are other medical institutions which are made use of by the Leeds students The buildings of the Medical School are placed close to the Infirmary and contain complete accommodation for the training of medical students upon the most approved modern methods A very fine dissecting room extensive laboratories for Physiology and Pathology with the most recent improvements in fittings and apparatus ample lecture-room accommodation a large Library and separate Museums for Pathology and Anatomy are some of the most striking features of the buildings Provision for the convenience of students in the shape of a common room a refectory &c, are made The classes in Systematic and Practical Chemistry, Physics Botany, and Zoology are held in the Science and Arts Department of the University in College road

Staff of Leeds General Infirmary —Consulting Physicians Sir Thomas Clifford Allbutt K C B Dr John E Eddison, Dr Charles M Chadwick and Dr Alfred George Barrs Consulting Surgeons Mr Thomas Pridgin Teale Mr A W Mayo Robson Mr Edward Ward and Mr Harry Littlewood Consulting Ophthalmic and Aural Surgeon Mr John Albert Nunneley Consulting Obstetric Physician Dr James Braithwaite Consulting Dental Surgeon Mr T S

Carter. Physicians: Dr. Thomas Churton, Dr. T. Wardrop Griffith, and Dr. W. H. Maxwell Telling. Surgeons: Mr. R. Lawford Knaggs, Sir Berkeley Moynihan, Mr. Walter Thompson, and Mr. J. Faulkner Dobson. Ophthalmic Surgeons: Mr. H. Secker Walker and Mr. A. L. Whitehead. Ear, Nose, and Throat Surgeons: Mr. G. Constable Hayes and Mr. F. W. Bain. Obstetric Physician: Dr. J. B. Hellier. Assistant Physicians: Dr. Geo. W. Watson, Dr. R. A. Veale, and Dr. C. W. Vining. Assistant Surgeons: Mr. H. Collinson, Mr. L. R. Braithwaite, Mr. A. Coupland, and Mr. S. W. Daw. Pathologist: Dr. Albert S. Grünbaum. Dental Surgeon: Mr. J. B. Hordern. Director of the Electro-Therapeutic Department: Mr. L. A. Rowden. Clinical Pathologist: Mr. M. J. Stewart. Assistant Clinical Pathologist: Dr. A. H. Miller. Medical Tutor: Dr. J. Le F. C. Burrow. Surgical Tutor: Mr. A. Richardson. Anæsthetists: Dr. Douglas Seaton, Dr. S. T. Rowling, Dr. F. Whalley, Dr. Macvean, Dr. F. Marshall Greaves, and Dr. A. E. Hutton. General Manager: Fred. J. Bray.

UNIVERSITY OF SHEFFIELD.

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Candidates for a medical degree shall have matriculated in the University or have passed such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board. The subjects required by the General Medical Council must be included in the Matriculation Examination or its recognised substitute.

A candidate for the degrees of M.B., Ch.B., shall produce certificates that he will have attained the age of 21 years on the day of graduation; that he has pursued the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his registration as a medical student by the General Medical Council, three of such years at least having been passed in the University, one at least being subsequent to the passing of the First Examination.

Degrees of Bachelor of Medicine and Bachelor of Surgery.

The First Examination.—The subjects of examination are (A) Chemistry and Physics; and (B) Biology. Candidates may pass in (A) and (B) at separate examinations. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination. Candidates must, after matriculation and registration as a medical student, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each.

The Second Examination.—The subjects of examination are (A) Anatomy and Physiology; (B) Materia Medica and Pharmacy. The examination is divided into two parts (A) and (B), and candidates may pass in either part separately. Candidates must have completed the third winter session of professional study, must have passed the first examination, and must have attended (1) lectures on anatomy and dissections during five terms; (2) lectures on physiology during four terms, practical, experimental, and chemical physiology during four terms, and histology during one term; and (3) materia medica and pharmacy for one term.

The Third or Final Examination.—The subjects of examination are divided into two parts—namely, A (forensic medicine and toxicology, public health, and pathology and morbid anatomy) and B (medicine, including pharmacology and therapeutics, mental diseases, and diseases of children, surgery, obstetrics, and gynæcology). Candidates may present themselves for examination in both parts on the same occasion or separately, but Part A may not be passed before the completion of the fourth year of study. Candidates for the whole examination or for Part B must have completed the fifth year of study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine, and must pass an examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates for the degree of Ch.M. must have passed the examination for the degrees of M.B., Ch.B. at least one year previously and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution, affording full opportunity for the study of Practical Surgery.

The subjects of examination are Systematic, Clinical, and Operative Surgery, Surgical Anatomy, Surgical Pathology and Bacteriology.

Professors—Physics: W. M. Hicks, Sc.D., F.R.S. Chemistry: W. Palmer Wynne, D.Sc., F.R.S. Biology: Alfred Denny, M.Sc., F.L.S. Anatomy: C. J Patten, M A., M.D., Sc.D. Physiology: J. S. Macdonald, B.A., L.R.C.S., L.R C P. Medicine: D. Burgess, M.A., M.B., F R.C.P. Surgery: Sinclair White, M.D., M.Ch., F.R.C.S. Pathology: H. R. Dean, M.A., M.D., F.R.C.P. Midwifery: P. E. Barber, B.A., M.R.C.S., L.R.C.P. Public Health: Ralph P. Williams, M.D., D.P.H. Dean of the Medical Faculty: Arthur J. Hall.

Scholarships, &c.—At this University there are 8 scholarships and a Town Trust Fellowship. The Entrance Scholarship, of the approximate value of £122, is awarded after examination, but the candidate must read for a Degree in Medicine. There are four Town Trust Scholarships, obtainable by a special examination open to boys or girls, who must have been educated in a Sheffield Secondary School, which are of the value of £50 each per annum. The Kaye Scholarship in Anatomy and Physiology, of £22 10*s.* for one year, is awarded after special examination of students who have completed the second Winter Session. The candidates' must be natives of Sheffield. The Mechanics' Institute Scholarship of £50 per annum for one year (renewable for a second) is a post-graduate Scholarship. The Frederick Clifford Scholarship of £50 per annum for two years is available for graduates of the University residing within 40 miles. The Senate considers each application for these two latter, as also that of the Town Trust Fellowship, value £75 per annum for one year, open to graduates of the University. Full particulars as to curriculum, scholarships, &c., may be had on application to the Registrar or to the Dean of the Medical Faculty.

The Medical School.—The new buildings of the University opened in 1905 are situated at the west end of the city, adjoining Weston Park, and the Medical department occupies the entire north wing of the University quadrangle. The various athletic and other students' societies are under the management of a Students' Representative Council, elected annually. There are large and comfortable common rooms both for men and women students. A refectory is open daily at the University where students may obtain refreshments, lunch, dinner, &c., at extremely moderate prices. The University journal *Floreamus*, edited by a committee of staff and students, is published each term. The University Hostel, Ashgate-road, is recognised by the Senate as a residence for women students, full particulars of which may be obtained of the tutor for women students.

Clinical Instruction.—The University is within easy reach of the various hospitals with which it is connected for clinical purposes. These are as follows: The Royal Infirmary, containing 320 beds, with an annual average number of over 3800 in-patients, over 11,500 out-patients, and over 23,000 casualties; the Royal Hospital, with 191 beds, and an annual number of 3000 in-patients, over 20,000 out-patients, and nearly 20,000 casualties; and the Jessop Hospital for Diseases of Women, with 80 beds, about 750 in-patients, and over 3000 out-patients; also a Maternity department, with about 450 in-patients per annum and about 700 out-patient cases attended. Special courses on Fevers are held at the City Fever Hospitals (570 beds) and on Mental Diseases at the South Yorkshire Asylum (1610 beds). For purposes of clinical practice the practices of the Royal Infirmary and Royal Hospital are amalgamated, giving a total of 511 beds for the treatment of medical, surgical, and special cases. There are special departments for the treatment of Diseases of the Eye at each institution, with wards assigned to them. In addition to these the Royal Infirmary has special departments for the treatment of Diseases of the Skin and Ear, with beds assigned to them, whilst at the Royal Hospital there are special out-patient departments for Diseases of the Throat, Ear, Skin, Orthopædics, and Mental Diseases. During the last year over 6000 patients passed through the wards of the two institutions, while those attending as out-patients numbered over 45,000. The medical and surgical staffs attend daily and give clinical instruction in the wards and out-patient rooms at stated times. Clinical lectures in Medicine and Surgery are given weekly at stated times. Instruction in the practical administration of anæsthetics is given at either institution by the Anæsthetists. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—which are in the University buildings are, both as regards structural arrangements and scientific equipment, on the most modern and complete lines. No expense has been spared in the matter of apparatus for teaching or research work and the facilities for practical study in these subjects are second to none. The department of Pathology and Bacteriology in the University is replete with every requirement for the most advanced work in these subjects. There is a large Pathological Museum in the department open daily to students. The post-mortem rooms of the Royal Infirmary and Royal Hospital are under the charge of the Professor of Pathology and afford ample material for demonstrations. In connexion with the University there is a complete dental department, fully recognised by the various examining bodies, at the Sheffield Royal Hospital.

Students who have passed their examination in anatomy and physiology can hold the usual dresserships and clerkships, the appointments being for a period of three months except in the case of casualty dresserships, which last two months. All students beginning hospital practice in Sheffield will be required to hold the post of casualty dresser before being eligible for any other of the above appointments. In addition to the laboratories above mentioned the Medical department of the University contains lecture rooms for the various subjects of the curriculum, a complete materia medica museum, and the large library and reading-room of the Medico-Chirurgical Society which is open daily to students for purposes of study.

Fees.—The Composition Fees are as follows: A, for University Lectures and Practical Classes, £80; B, for Clinical Hospital Practice, £49 17*s.* 6*d.* These two composition fees entitle the student to attendance on *all* the Lectures, [illegible] cost of apparatus, instruments, parts for dissection in anatomy, &c., all of which must be provided by the student when and as required. The fees are payable in instalments extending over the five years of the curriculum.

Staff of the Royal Infirmary, Sheffield.—Physicians: Dr. W. S. Porter, Dr. A. E. Barnes, and Dr. A. G. Yates. Surgeons: Dr. Sinclair White, Mr. Arthur Connell, and Mr. Archibald Cuff. Assistant Surgeon: Mr. Ernest Finch. Dermatologist: Dr. Rupert Hallam. Honorary Pathologist: Professor H. R. Dean. Medical Officer to the Ear and Throat Department: Mr. W. S. Kerr. Ophthalmic Surgeon: Mr. G. H. Pooley. Medical Registrar: Dr. W. W. King. Surgical Registrar: (vacant). Medical Officer in Charge of Electrical Department: Dr. Rupert Hallam. Anæsthetists: Mr. H. T. Wightman, Mr. J. Wilfred Stokes, Dr. W. D. Mart, and Dr. V. F. Favell. Clinical Pathologist: Dr. W. W. King. Honorary Secretary to the Medical and Surgical Staff: Mr. W. S Kerr.

Staff of the Sheffield Royal Hospital.—Physicians: Professor Duncan Burgess and Dr. Arthur Hall. Surgeons: Mr. Graham Simpson and Mr. Garrick Wilson. Assistant Physicians: Dr. A. E. Naish and Dr. Herbert Henry. Assistant Surgeons: Mr. Ferguson Wilson and Mr. Townrow. Ophthalmic Surgeon: Dr. Stanley Riseley. Assistant Ophthalmic Surgeon: Mr. Herbert Emmerson. Aural Surgeon: Dr. George Wilkinson. Physician for Mental Diseases: Mr. Gilbert E. Mould. Medical Officer to the Electrical Department: Dr. W. Harwood Nutt. Physician for Skin Diseases: Dr. E. F. Skinner. Anæsthetists: Mr. Herbert Hallam, Mr. Norton Milner, and Dr. C. Graham Murray. Pathologist: Professor Dean. Honorary Secretary to the Medical and Surgical Staff: Dr. Stanley Riseley. Dental Surgeons: Mr. F. G. Mordaunt, Mr. D. Dathl Davies, Mr. H. J. Morris, Mr. P. S. Stokes, and Mr. W. J. Law. Assistant Dental Surgeons: Mr. H. J. Stoner, Mr. R. Cecil Webster, Mr. F. W. Goodwin, and Mr. J. H Skerritt. Honorary Secretary to the Dental Staff: Mr. W. J. Law.

The other institutions at which students of the University of Sheffield receive clinical instruction are the City Fever Hospitals (Medical Superintendent, Dr. Egerton H. Williams), the South Yorkshire Asylum (Medical Superintendent, Dr. W. J. N. Vincent), the Jessop Hospital for Women, Gell-street, Sheffield, and the Hospital for Sick Children. The Jessop Hospital contains 57 beds for gynæcological cases and 17 for obstetric cases. A staff of midwives connected with the hospital attend lying-in women at their own homes, and, in case of need, are assisted by the members of the medical staff. A 3 months' course of instruction (theoretical and practical) is also provided for resident pupil midwives, the institution being approved by the Central Midwives Board as a training centre. Medical Officers: Mr. Richard Favell, Mr. Percival E. Barber, and Mr. Miles H. Phillips. Assistant Medical Officer: Mr. D. Gray Newton. Honorary Secretary to the Staff: Mr. Percival E. Barber.

UNIVERSITY OF BRISTOL.

In the Faculty of Medicine there are the following [illegible] dicine and Bachelor of Surgery [illegible] r of Medicine (M.D.), Master of [illegible] of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: Diploma in Public Health (D.P.H.), Diploma in Dental Surgery (L.D.S.), and Diploma in Veterinary State Medicine.

All candidates for degrees in Medicine, Surgery, and Dentistry are required to pass an examination called the Matriculation Examination, which must include Latin, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike.

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates shall be not less than 21 years of age and shall have pursued the courses prescribed by University Regulations during not less than five and a half years, of which three shall have been passed in the University, and two of these three subsequent to pass in the second examination. All candidates for the degrees of M.B., Ch.B., are required to satisfy the examiners in the several subjects of three examinations: the First Examination, the Second Examination, and the Final Examination.

[illegible] ation are: Che [illegible] e courses pur [illegible] l for the intermediate part of the B.Sc. curriculum. This part of the [illegible] Parts I. and II [illegible]

[illegible] amination are: Ma [illegible] nd Therapeutics, General [illegible] Bacteriology (Part I.); [illegible] Medicine, Toxicology, and [illegible] (including Diseases of Women), Surgery (Systematic, Clinical, Practical, and Operative), Medicine (Systematic, Clinical, and Practical, including Mental Diseases) (Part II.). Candidates may pass I. and II. together, or separately, and Forensic Medicine and Toxicology may, at the option of the candidate, be taken either with Part I. or Part II.

Degree of Doctor of Medicine.—Candidates shall be Bachelors of the University of not less than two years' standing as such and may elect either (1) to pass an examination in Genera [illegible] State Medicine, [illegible] blic Health of some University or [illegible] who elects to present a Dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—Candidates shall be Bachelors of not less than two years as such, during which period they shall have attended the Surgical Practice of an institution approved for the purpose. They shall pass an examination in Surgical Anatomy, Pathology, and Bacteriology, and Operative, Clinical, and General Surgery, and present to the University [illegible] Ph.D.

Professor [illegible] of the Anatomy: [illegible] Faculty of Medicine). Physiology: A. F. Stanley Kent, M.A. Pathology: I. Walker Hall, M.D., C.M. Obstetrics: W. C. Swayne, M.D., B.S. Surgery: C. A. Morton, F.R.C.S., and James Swain, M.D., F.R.C.S. Medicine: F. H. Edgeworth, M.D., B.C., D.Sc., and J. Michell Clarke, M.D., F.R.C.P.

Clinical Instruction.—The allied hospitals (Bristol Royal

Infirmary and Bristol General Hospital) have between them 470 beds and extensive out-patient departments, special clinics for Diseases of Women and Children and those of the Eye, Throat, and Ear, in addition to arrangements for Dental work and large outdoor Maternity Departments.

At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for Morbid Anatomy. There are also laboratories for work in Clinical Pathology, Bacteriology, and Cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for X ray work, both for diagnosis and treatment, the various forms of Electrical treatment, including High Frequency Currents, Electric Baths, Finsen Light treatment, and Massage.

The students of the school have also the advantage of attending the practice of the Royal Hospital for Sick Children and Women, containing 140 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is therefore upwards of 600. Excellent facilities are thus afforded to students for obtaining a wide and thorough acquaintance with all branches of Medical and Surgical work. Each student has the opportunity of personally studying a large number of cases and acquiring practical skill in diagnosis and treatment. All classes are open to women.

Appointments (Undergraduates).—Clinical Clerkships, Dresserships, also Ophthalmic, Obstetric, and Pathological Clerkships are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the Dressers reside in rotation free of charge.

Appointments (Post-Graduate) at the Bristol Royal Infirmary.—Two House Surgeons £100 each per annum, two House Physicians £100, Resident Obstetric and Ophthalmic House Surgeon £75, Throat, Nose, and Ear House Surgeon £75, Casualty Officer £50, Dental House Surgeon £100. All these appointments are made for 12 months, except that of Casualty Officer, which is for six months. From the resident officers a Senior Resident Officer is appointed at an additional salary of £30.

At the Bristol General Hospital.—Senior House Surgeon £150 per annum, Casualty House Surgeon £100 per annum if another resident appointment has been previously held. Two House Physicians £80, House Surgeon £80, Dental House Surgeon £200 per annum. All these appointments are for six months, except that of Dental House Surgeon, which is for two years.

Staff of the Bristol Royal Infirmary.—Honorary and Consulting Physicians: Dr. R. Shingleton Smith, Dr. H. Waldo, and Dr. J. E. Shaw. Honorary and Consulting Surgeons: Mr. E. C. Board, Mr. W. H. Harsant, Mr. A. W. Prichard, Mr. G. Munro Smith, and Mr. J. Paul Bush. Honorary and Consulting Ophthalmic Surgeon: Mr. F. Richardson Cross. Honorary Physicians: Dr. A. B. Prowse, Dr. F. H. Edgeworth, Dr. J. A. Nixon (Dean of the Faculty of the Royal Infirmary), and Dr. J. R Charles. Honorary Surgeons: Dr. J. Swain, Mr. T. Carwardine, Mr. H. F. Mole, and Mr. E. H. E. Stack. Honorary Ophthalmic Surgeon: Dr. Ogilvy. Honorary Obstetric Physician: Dr. Walter Swayne Honorary Dental Surgeon: Mr. W. R. Ackland. Honorary Physician to the Nose and Throat Department: Dr. P. Watson Williams. Honorary Assistant Physician: Dr. J. M. Fortescue-Brickdale. Honorary Assistant Surgeons: Mr. C. F. Walters and Dr. A. Rendle Short. Honorary Assistant Dental Surgeon: Mr. F. C. Nichols. Pathologist: Dr. I. Walker Hall. Honorary Demonstrator of Morbid Anatomy: Dr. J. J. S. Lucas. Assistant Pathologist: Dr. J. R. Kay-Mouatt. Honorary Anæsthetist: Mr. A. L. Flemming. Honorary Assistant Anæsthetists: Mr. S. V. Stock and Mr. Leonard Moore. Honorary Skiagraphist: Mr. James Taylor.

Staff of the Bristol General Hospital.—Honorary and Consulting Physicians: Dr. A. J. Harrison and Dr. J. Barclay Baron. Honorary and Consulting Surgeons: Dr. George F. Atchley, Mr. Nelson C. Dobson, Mr. F. Poole Lansdown, Mr. Chas. F. Pickering, and Mr. H. Greville Kyle. Physicians: Dr. J. Michell Clarke (Dean of the Faculty of the Bristol General Hospital), Dr. George Parker, and Dr. J. O. Symes. Surgeons: Mr. C. A. Morton, Dr. R. G. Poole Lansdown, Dr. J. Lacy Firth, and Mr. E. W. Hey Groves. Physician Accoucheur: Dr. W. H. C. Newnham. Physician to Department fo[illegible] of the Skin: Dr. W. Kenneth Wills. Surgeon to t[illegible] and Nose: Mr. A. J. Wright. Surgeon to the Ear: Dr. J. Lacy Firth. Ophthalmic Surgeon: Mr. Cyril H. Walker. Assistant Physicians: Dr. Newman Neild and Dr. Carey F. Coombs. Assistant Surgeon: Mr. C. A. Moore. Assistant Physician Accoucheur: Mr. D. C. Rayner. Anæsthetists: Dr. J. Freeman and Dr. Hedley Hill. Dental Surgeon: Mr. E. A. G. Dowling. Assistant Dental Surgeon: Mr. H. J. Wyatt. Pathologist: Mr. G. Scott Williamson. Dental Anæsthetist: Mr. C. Corfield. Curator of Museum: Mr. G. Scott Williamson. Electrical Department: Dr. George Parker, Mr. J. Ellington Jones. Skiagraphist: Mr. F. G. Bergin.

Scholarships and Prizes.—At the Bristol Royal Infirmary there are five pr[illegible] who have done [illegible] They are the [illegible] Prize, each consisting of a gold medal of the value of 5 guineas and 7 guineas in money. The one is awarded after competitive examination in Medicine of students of the fourth and fifth years and the other after competitive examination in Surgery of students of the third and fourth years. The Henry Clark Prize, value 11 guineas, is awarded for the class work of third-year students. The Crosby Leonard Prize, value 7 guineas, is awarded after examination in Clinical Surgery, and the Augustin Prichard Prize, value 6 guineas, is awarded after examination in Surgical Anatomy.

At the Bristol General Hospital there are two scholarships and a prize, which are restricted to perpetual students who have done the necessary qualifying work at the Hospital. The Sanders Scholarship, value £22 10*s*., is awarded after competitive examination in Medicine, Surgery, and Midwifery of fourth-year students. The Clarke Scholarship of £15 is awarded after competitive examination in surgery among students of the fourth year. The Marshall Prize, value £12, is awarded to the best surgical dresser of the fourth year.

The Tibbits Surgical Prize of £9 9*s*. is awarded for proficiency in Practical Surgery. The Martyn Memorial Pathological Prizes of £10 each, of which there are two annually, are awarded after competitive examination in Pathology and Morbid Anatomy. A gold medal and a silver medal are given by the committees of the two institutions to the most distinguished students of the fifth year. These prizes and medals can be competed for by perpetual students of the Faculty of Medicine, University of Bristol.

Fees.—For the complete curriculum for the degrees of M.B., Ch.B., 140 guineas, or 150 guineas if paid in two instalments.

For the complete curriculum for the degree of B.D.S., including the Mechanical Laboratory work, 190 guineas; if without the Laboratory work, 115 guineas. This fee may also be paid by instalments.

For the complete curriculum for the L.D.S., including the Mechanical Laboratory, 168 guineas; if without Laboratory, 93 guineas. This fee may also be paid by instalments

For the complete curriculum for the D.P.H., 30 guineas.

The fees for Hospital work may be paid separately. For a Medical curriculum they amount to 60 guineas; for the B.D S., 30 guineas; and for the L.D.S., 20 guineas.

Medical Practitioners and others not requiring certificates of attendance may attend the Medical and Surgical Practice of the Hospitals at the following fees:—For one month, 2 guineas; two months, 3 guineas; three months, 4 guineas; six months, 7 guineas.

Further information as to curricula and fees can be obtained from the Dean of the Faculty of Medicine or the Registrar of the University.

UNIVERSITY OF WALES.

This University has now the privilege of granting degrees in Medicine and Diplomas in Public Health. At the three constituent Colleges of Aberystwyth, Bangor, and Cardiff there are Professors of Chemistry, Botany, Zoology, and Physics, so that the students of the University can obtain proper instruction in the ancillary subjects. The foundation of a Medical Faculty has been laid at University College, Cardiff, where there is a recognised school of medicine.

University College, Cardiff: School of Medicine.—All classes are open to both men and women students who may [illegible] or four out of their five years of medical study [illegible] The courses of instruction given at Cardiff are recognised as qualifying for the examinations of the Universities, Royal Colleges, and other licensing bodies of

Great Britain and Ireland, and they are specially adapted to meet the needs of those University students studying for Cambridge and London degrees. Students who are preparing for these examinations may compound for their courses by paying a fee of £63, while a composition fee of £41 10*s.* includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the King Edward VII.'s Hospital, Cardiff. The attention of students about to matriculate is drawn to the numerous entrance scholarships offered for competition at University College, Cardiff, in April next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health established in 1899 instruction is given qualifying for the D.P.H. examinations. Further information may be obtained from the Dean of the Faculty of Medicine.

Lecturers.—Physics: Professor A. L. Selby. Chemistry: Professor C. M. Thompson. Zoology: Professor W. N. Parker. Botany: Professor A. H. Trow. Anatomy: Professor David Hepburn. Physiology: Professor J. B. Haycraft. Materia Medica and Therapeutics: Dr. W. Mitchell Stevens. Pathology and Bacteriology: Professor Emrys-Roberts. [illegible] len. Public Health and [illegible] J. Morgan. Midwifery [illegible] Vaccination: E. Emrys-Roberts.

Clinical Instruction.—KING EDWARD VII.'S HOSPITAL, CARDIFF.—Students can attend the practice of this infirmary, which contains 270 beds. Founded 1837. In-patients, 2711; out-patients, 19,149.

Staff:—Consulting Physicians: Dr. W. T. Edwards and Dr. C. T. Vachell. Consulting Surgeon: Dr. T. Wallace. Consulting Dental Surgeon: Mr. John C. Oliver. Physicians: Dr. Mitchell Stevens and Dr. Cyril Lewis. Surgeons: Mr. P. Rhys Griffiths, Mr. William Sheen, and Mr. J Lynn Thomas. Assistant Physicians: Dr. Alfred Howell and others (to be appointed). Assistant Surgeons: Dr. H. G Cook, Mr. Cornelius A. Griffiths, and Mr. William Martin. Ophthalmic Surgeons: Mr. F. P. S. Cresswell and Mr. R. Russell Thomas. Assistant Ophthalmic Surgeon: Dr D. Leighton Davies. Gynæcologists: Dr. Ewen J. Maclean and Mr. E. Tenison Collins. Ear, Throat, and Nose Surgeon: Dr. D. R. Paterson. Pathologists: Mr. H. A. Scholberg and Professor Emrys-Roberts. Sanitary Advisor: Dr. E. Walford. Anæsthetists: Mr. Frederick W. S. Davies and Mr. Alexander Brownlee. Assistant Anæsthetists: Mr. A. C. Devereux, Dr. J. Sydney Rowlands, and Mr. A. L. Thornley. Dental Surgeons: Mr. W. Kittow and Mr. Thomas Quinlan. Electrical Department: Dr. Owen L. Rhys. Resident Medical Officer: Dr. Fergus Armstrong.

SWANSEA GENERAL AND EYE HOSPITAL AND SWANSEA HOSPITAL CONVALESCENT HOME.—Hospital established 1817, Home 1903. Hospital 141, Convalescent Home built for 20 beds and one cot. Consulting Physicians: Dr. D. A Davies, Dr. John A. Rawlings, Dr. F. Knight, and Dr. J. S. H. Roberts. Consulting Surgeons: Mr. J. Thomas and Mr. H. A. Latimer. Honorary Consulting Gynæcologist: Dr. R. Nelson Jones. Physicians: Dr. E. Le C. Lancaster and Dr. D. E. Evans. Surgeons: Mr. W. F. Brook and Mr. R. O. Elsworth. Physician Accoucheur: Dr. F. Knight. Gynæcologist: Dr. Edgar Reid. Ophthalmic Surgeon: Dr. Frank G. Thomas. Assistant Ophthalmic Surgeon: Mr. H. E. Quick. Surgeon to the Throat, Nose, and Ear Department: Dr. A. F. Blagdon-Richards. Assistant Physicians: Dr. Alban Evans and Dr. W. L. Griffiths. Assistant Surgeons: Dr. C. L. Isaac and Dr. A. W. Cameron. Vaccine Therapist: Dr. A. Clarke Begg. Medical Officers for Out-door Patients: Dr A. W. Cameron, Dr. C. L. Isaac, Dr. W. L. Griffiths, and Dr. Alban Evans. Surgeon-Dentist: Mr. H. J. Thomas. Electro-Therapeutic Officer: Dr. D. R. Edwards Anæsthetists: Dr. W. L. Griffiths, Mr. Alban Evans, Dr. Trevor Evans, and Mr. Urban Marks. Resident Medical Officers—House Surgeons: Mr. D. Bell, Mr. P. Chalmers, and Miss E. S. Impey. Secretary-Superintendent: W. D. Hughes. In-patients, 2639; out-patients, 9839. The number of in-patients includes the Convalescent Home, which was used as a ward of the hospital for the year owing to the growing demands for beds, coupled with the disorganisation associated with extensive building operations, &c.

ENGLISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Under this heading we give the regulations for the examinations enforced by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England and of the Society of Apothecaries upon students desiring their respective diplomas of qualification. We do not give any list of schools recognised by these bodies as eligible to prepare students for their examinations beyond mentioning that all the schools which we have already described (under the heading of the Universities to which they are attached) are recognised as suitable places of instruction by the corporations granting medical diplomas. The courses of study at the principal colonial medical schools are also recognised as qualifying for the examinations of these corporations.

Any candidate who desires to obtain both the Licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth. Six months of the curriculum may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics, Practical Chemistry, and Biology.

P [illegible] call [illegible] tion [illegible] written, partly oral, and partly practical. These examina- [illegible] commences, transmitting at the same time the required certificates.

The subjects of the *First Examination* are—Chemistry, Physics, Elementary Biology, and Practical Pharmacy. A candidate may take this examination in three parts at different times (Chemistry and Physics must be taken together until the required standard is reached in both or in one of these subjects, but a candidate will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other). A candidate will be admitted to examination in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution, but he may take Pharmacy at any time during the curriculum. Certificates must be produced of 180 hours' instruction and laboratory work in chemistry; 120 hours' instruction and laboratory work in physics; and 120 hours' instruction and laboratory work in biology. These courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education. Synopses of the subjects of examination may be obtained on application. A candidate rejected in one part or more of the First Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry, Physics, or Biology he must produce evidence of further instruction at a recognised Institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of [illegible] in the United King[illegible] be exempt from ex[illegible] has passed.

The fees for admission to the *First Examination* are as follows: For the whole examination, £10 10*s.*; for re-examination after rejection in Parts I. and II., £3 3*s.*; and for re-examination in each of the other parts, £2 2*s.*

The subjects of the *Second Examination* are Anatomy and Physiology. Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second Examination on production of the required certificates of professional study. The study of Anatomy and Physiology before passing in two of first three parts of the First Professional Examination is not recognised.

A candidate referred on the *Second Examination* will be required, before being admitted to re-examination, to produce a certificate that he has pursued, to the satisfaction of his teachers, in a recognised place of study, his Anatomical and Physiological studies during a period of not less than three months subsequently to the date of his reference.

The fees for admission to the *Second Examination* are: £10 10*s.* for the whole examination and £6 6*s.* for re-examination after rejection.

The subjects of the *Third* or *Final Examination* are: Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics, Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination. Part II. Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for Parts I., II., and III. of the examination separately or together at the expiration of not less than two years (24 months) from the date of passing the Second Examination, on production of the certificates of study required for the respective parts, provided that the examination is not completed before the expiration of five years from the date of passing the Preliminary Examination—viz., Part I., Medicine, of having attended Lectures on Medicine, Pathology including Bacteriology, Pharmacology, and Therapeutics, Forensic Medicine, and Public Health; Practical Instruction in Medicine; Medical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Medicine during nine months; of having discharged the duties of Medical Clinical Clerk; Instruction in the Administration of Anæsthetics; Practice of a Fever Hospital and Clinical Demonstrations at a recognised Lunatic Asylum. Part II., Surgery, of having attended Lectures on Surgery and Pathology including Bacteriology; Practical Instruction in Surgery; of having performed operations upon the Dead Subject; Surgical Hospital Practice during two winter and two summer sessions; Demonstrations n the Post-mortem Room during 12 months; Clinical Lectures on Surgery during nine months; of having discharged the duties of Surgical Dresser; Instruction in the Administration of Anæsthetics; and Clinical Instruction in Ophthalmology. Part III., Midwifery, of having attended all the above courses as well as Lectures on Midwifery; Practical Instruction in Midwifery; Clinical or other Lectures, with Practical Instruction in Diseases Peculiar to Women; of having discharged the duties of Clinical Clerk in the Gynæcological Wards or Out-patient Department; and of having conducted 20 Labours.

The fees for admission to the *Third* or *Final Examination* are as follows: For the whole examination, £21. Part I. For re-examination in Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health, £5 5*s.*; for re-examination in Practical Pharmacy (if taken at this examination), £2 2*s.* Part II. For re-examination in Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances, £5 5*s.* Part III. For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s.*

A candidate referred on the *Third* or *Final Examination* will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received, subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second Examinations of the Examining Board, may enter for the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology, on production of the required certificates.

Graduates in Medicine of certain recognised Indian, Colonial, and Foreign universities may present themselves for the Final examination under special conditions which can be ascertained on application to the Secretary.

ROYAL COLLEGE OF PHYSICIANS OF LONDON: THE MEMBERSHIP AND FELLOWSHIP.

In addition to the diplomas granted by the English Conjoint Board, the Royal College of Physicians of London and the Royal College of Surgeons of England grant honour diplomas, which no longer give the right to practise professionally if held separately. The Royal College of Physicians of London has two such diplomas, the *Fellowship* which is a purely honorary distinction and the *Membership* which is obtained by examination.

Membership.—Every candidate for the Membership of the College must furnish proof of having attained the age of 25 years. Candidates must not be engaged in trade, dispense medicine, make any engagement with a chemist, or any other person for the supply of medicine, or practise medicine or surgery in partnership, by deed or otherwise. Any candidate being already registered or having passed a qualifying examination in accordance with the Medical Act of 1886, who has obtained the degree of Doctor or Bachelor of Medicine at a University in the United Kingdom, in India, or a British colony, or who has obtained a foreign qualification entitling him or her to practise medicine or surgery in the country where such qualification has been conferred, wherein the courses of study and the examinations to be undergone previously to graduation have been adjudged by the Censors' Board to be satisfactory, will (if the Censors think fit) be admitted to the Pass Examination. The nature and extent of this examination will, in the case of each candidate, be determined by the Censors' Board. All other candidates must produce proof of having passed the examinations required for the Licence of the College. The examination is directed partly to pathology and partly to the practice of medicine and may be modified in circumstances to be ascertained by application to the Registrar. For example, candidates under 40 years of age are examined in an ancient and a modern language, a test from which their seniors are exempt. The fee for admission as a Member of the College is 40 guineas, except when the candidate for Membership is a Licentiate of the College, in which case the fee already paid for the Licence shall be deducted from the 40 guineas. The fee for the examination is £6 6*s.*

Fellowship.—The *Fellows* are selected annually from the ranks of the *Members.*

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THE FELLOWSHIP.

The Royal College of Surgeons of England confers its diploma of Fellow upon a few distinguished persons in an honorary capacity. Two Members of long standing may also be elected to the Fellowship annually. But the bulk of the Fellows obtain the diploma as the result of examination.

Fellowship.—The examination for the Fellowship is divided into two parts—viz., the First Examination and the Second Examination. The subjects of the First Examination are Anatomy and Physiology and the questions on these subjects may require an elementary acquaintance with Comparative Anatomy and Physiology. The examination is partly written and partly *vivâ voce.* The subjects of the Second Examination are Surgery, including Surgical Anatomy and Pathology. The examination is partly written and partly *vivâ voce* and includes the examination of patients and the performance of operations on the dead body. The examinations are held during the months of May and November of each year.

The fees for examination are:—First Examination, each admission, 5 guineas. Second Examination, each admission, 12 guineas. Of such examination fees 17 guineas will be reckoned as part of the fee payable upon admission to the Fellowship. The fee to be paid upon admission to the Fellowship is 30 guineas, except when the candidate is a Member of the College, in which case the fee is 20 guineas.

A Member of the College is admissible to the First Examination at any time after receiving his Diploma of Membership A candidate who is not a member of the College is admissible to the first Professional Examination for the Fellowship on the production of evidence of having passed the First and Second Examinations of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England (or, if a member of a University recognised by the College for the purpose, of having passed the Examinations in his University equivalent to the First and Second Examinations of the Board) and on the production of certificates of attendance upon certain courses of study described in the Regulations

A Member of the College is admissible to the Second Examination at any time after having passed the First Examination, on producing satisfactory evidence of having been engaged not less than six years in the study (or study and practice) of the profession

A candidate who is not a Member of the College must possess the registrable surgical and medical degrees of universities recognised by the Council and must have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognised qualification, one year of which shall have been spent in attendance on the Surgical Practice of a recognised hospital The diploma of Fellow is not conferred upon successful candidates until they have attained the age of 25 years

The Regulations may be obtained on application to the Secretary of the Examining Board Examination Hall, Queen square, Bloomsbury, London, W C

SOCIETY OF APOTHECARIES OF LONDON

There are two examinations—Primary and Final The Final examination is divided into Section I and Section II The Primary examination is held quarterly Final examinations are held monthly No examinations are held in the month of September

The Primary examination consists of two parts Part I Elementary Biology, Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids, Heat, Light, and Electricity, Practical Chemistry, and Materia Medica and Pharmacy A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application Evidence of instruction in these subjects must be produced prior to examination Part II includes Anatomy, Physiology, and Histology This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one Evidence must be produced of the candidate's course of study A schedule for the Primary examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority Section I of the Final examination consists of three parts Part I includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances Part II includes the Principles and Practice of Medicine, Pharmacology, Pathology, and Morbid Histology, Forensic Medicine, Hygiene, Theory and Practice of Vaccination, and Mental Diseases Part III includes Midwifery, Gynæcology, and Diseases of New born Children and the Use of Obstetric Instruments and Appliances Section I of the Final examination cannot be passed before the expiration of 45 months from the date of commencement of medical study, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society Section II of the Final examination consists of two Parts Part I Clinical Surgery, Part II Clinical Medicine and Medical Anatomy Section II cannot be passed before the end of the fifth year

The course of study for the *Primary examination* is as follows—Elementary Biology, not less than three months, Chemistry and Chemical Physics, six months, Practical Chemistry, three months, Pharmacy and Dispensing, three months, Anatomy, six months, Practical Anatomy with Demonstrations, 12 months, Physiology, six months, Histology with Demonstrations three months The study of these subjects must be pursued at a Medical School recognised by the Society Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination or in a public hospital, infirmary, or dispensary

The course of study for the *Final examination, Section I* includes attendance on the Surgical and Medical Practice (with Post mortem Examinations) at a hospital connected with a medical school for a period of one winter and one summer session, lectures on the Principles and Practice of Surgery, six months, Practical Surgery, three months, Clinical Surgical Lectures, nine months, Dressership, six months, Performance of Surgical Operations on the Dead Body, lectures on Principles and Practice of Medicine, six months, Pathology, three months, Clinical Medical Lectures, nine months, Clinical Clerkship, six months, Forensic Medicine, Hygiene and Insanity three months, Midwifery and Gynæcology, three months, Clinical Instruction in the same, three months, a course of Practical Midwifery, attendance on 20 Midwifery cases The course of medical study must extend over the above mentioned period of 45 months and the offices of dresser or clinical clerk must be held at a hospital, or other institution recognised by the Society

The course of study for the *Final examination, Section II*, includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children No candidate is eligible for the Final examination who has not completed the curriculum prescribed by the Society, in evidence of which a schedule, to be obtained of the Secretary must be produced, signed by the Dean of the Medical School or other authority Prior to Section II of the Final examination the candidate must produce certificates (1) of being 21 years of age, (2) of moral character, (3) of the course of medical study, (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board, and (5) of instruction in the administration of anæsthetics Candidates intending to present themselves for examination are required to give 14 days' notice A form for this purpose will be sent on application

Licentiates are eligible for the Membership of the Society of Apothecaries Particulars may be obtained on application to the clerk

The fee for the Licence is 20 guineas The examination offices are open from 10 A M to 4 P M, on Saturdays from 10 A M to 1 P M All letters should be addressed to the Secretary, Court of Examiners Society of Apothecaries of London, Blackfriars, E C

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION

The institutions which follow provide to the medical student and medical graduate facilities for different forms of instruction and clinical observation In each case further information can be obtained from the secretary of the hospital

THE SEAMEN'S HOSPITAL SOCIETY possesses two hospitals—the *Dreadnought* Hospital at Greenwich, 250 beds and the Branch Hospital in the Royal Victoria and Albert Docks, E, 50 beds It has also two Dispensaries—one in the East India Dock road and the other at Gravesend—from which the patients are transferred to the hospitals The London School of Clinical Medicine is attached to the *Dreadnought* Hospital and the medical staff is as follows—Physicians Sir Dyce Duckworth Bart, Dr F Taylor, Sir J Rose Bradford, K C M G, Dr Guthrie Rankin and Dr S Russell Wells Surgeons Mr W Turner Mr L H McGavin Mr E Rock Carling and Mr C C Choyce Ophthalmic

Surgeon: Mr. L. V. Cargill. Surgeon for Diseases of the Skin: Sir Malcolm Morris, K.C.V.O. Surgeon for Diseases of the Throat, Nose, and Ear: Mr. Richard Lake. Acting Physician in charge of the Electrical Department: Colonel Collis Barry. Assistant Physicians: Dr. Fredk. Langmead, Dr. G. M. Holmes, and Dr. Charles Singer. Assistant Surgeons: Mr. H. Curtis, Mr. P. Cole, and Mr. C. Rowntree. Assistant Physician for Diseases of the Skin: Dr. H. MacCormac. Assistant Ophthalmic Surgeon: Mr. R. Bickerton. Assistant Surgeon for Diseases of the Throat, Nose, and Ear: Mr. G. N. Biggs. Director of Pathology: Professor R. Tanner Hewlett. Anæsthetists: Dr. R. E. Delbruck and Dr. E. W. Gandy. Dean: Mr. C. C. Choyce. Medical Superintendent: Mr. A. Gibson. The London School of Tropical Medicine is attached to the Albert Dock Hospital of the Society and the medical staff is as follows:—Physicians: Sir Patrick Manson, G.C.M.G., Dr. F. M. Sandwith, and Dr. C. W. Daniels. Surgeon: Mr. J. Cantlie. Ophthalmic Surgeon: Mr. L. V. Cargill. Dental Surgeon: Mr. K. W. Goadby. Director: Mr. H. B. Newham. Medical Officer East India Dock-road Dispensary: Mr. W. H. F. Oxley. Surgeon Gravesend Dispensary: Mr. C. E. Robbs. Secretary: Mr. P. J Michelli, C.M.G.

WEST LONDON HOSPITAL, Hammersmith-road, W.—This hospital has 160 beds, all of which are constantly in use. 2551 in-patients and 45,171 out-patients, whose attendances numbered 161,009, were treated last year. Attached to the hospital is the West London Post-Graduate College. The practice of the hospital is reserved exclusively for qualified men, no junior students being admitted. Instruction is given in the medical and surgical out-patient rooms and demonstrations are given in the wards every morning and afternoon. Post-graduate lectures and demonstrations are given daily except Saturdays; notice of the commencement of each course is advertised in the medical journals. Special Classes are held in Diseases of the Throat and Nose, Skin, and Eye, and in Gynæcology, Medical Electricity, Operative Surgery, Bacteriology, Anæsthetics, Intestinal Surgery, Surface Anatomy, Blood and Urine, Clinical Microscopy, Tropical Medicine, Cystoscopy, Venereal Diseases, and Operative Ophthalmology. The accommodation for post-graduates consists of a large lecture room, together with reading, writing, and class rooms, &c. The hospital has a fully equipped pathological laboratory at which instruction is given in elementary bacteriology, a class being held every month. The fees for hospital practice, including lectures, are £6 6*s*. for three months or £15 15*s*. for one year. The certificate of the hospital is accepted by the Admiralty, War Office, Colonial Office, and India Office in cases of study leave. The Winter Session will commence on Oct. 13th. The opening address will be given by Sir Gilbert Parker, M.P., on Thursday, Oct. 30th. Further information can be obtained on application to the Dean, Mr. Donald Armour, at the hospital. Physicians: Dr. A. P. Beddard, Dr. E. A. Saunders, and Dr. H. Pritchard. Physician for Diseases of Women: Dr. Drummond Robinson. Assistant Physician for Diseases of Women: Dr. H. J. F. Simson. Surgeons: Mr. A. Baldwin, Mr. Donald Armour, and Mr. J. Pardoe. Surgeon for Diseases of the Eye: Mr. H. P. Dunn. Assistant Surgeon for Diseases of the Eye: Mr. Bishop Harman Assistant Physicians: Dr. Grainger Stewart, Dr. J. M. Bernstein, and Dr Sydney A. Owen. Assistant Surgeons: Mr. O. L. Addison, Mr. H. Tyrrell Gray, and Mr. H. S. Souttar. Surgeon Dentist: Mr. H. Lloyd Williams. Physician in charge of Throat and Nose and Aural Department: Dr. H. J. Davis. Physician in charge of Children's Department: Dr. E. A. Saunders. Surgeon in charge of Orthopædic Department: Mr. A. Baldwin. Pathologist: Dr. Elworthy. Dermatologist: Dr. G. Pernet. Administrators of Anæsthetics: Messrs. Rickard W. Lloyd, E. W. Lewis, G. P. Shuter, and Dr. H. M. Page. Assistant Anæsthetists: Dr. J. D. Mortimer, Dr. W. E. Robinson, and Dr. G. R. Phillips. Electrician: Mr. E. D. MacDougal. X Ray Department: Dr. R. Morton. Medical Registrar: Dr. A. C. D. Firth. Surgical [illegible]. MacDonald. Secretary of the Hospital [illegible]

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—This hospital is recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum. Besides the Honorary Staff there are two resident House Physicians, three resident House Surgeons, five Anæsthetists, Pathologist, and Resident Medical Officer. The hospital contains 185 beds which are fully occupied. There is also a ward for children under five years of age. The large rectangular and circular wards, each of which contains 24 beds, the observation wards, the two operation theatres, general and special out-patient and pathological departments, are specially designed with a view of offering the greatest facilities for clinical work. There is also a well-appointed electrical department. The Pathological Department has been extended and is under the control of a Director of [illegible] Convalescent Home at [illegible] hospital. It contains 2[illegible] are cordially invited to see the general and special practice of the hospital. Demonstrations are given daily in the wards and out-patient departments. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. Further particulars from the Secretary of the Medical Committee at the Hospital. Consulting Physicians: Sir R. W. Burnet and Dr. E. C. Beale. Consulting Surgeon: Mr. Peyton T. B. Beale. Consulting Ophthalmic Surgeon: Mr. A. Stanford Morton. Physicians: Dr. A. Morison, Dr. T. J. Horder, Dr. Symes Thompson, Dr. Hinds Howell, Dr. F. W. Price, Dr. H. L Tidy, and Dr. E. Bellingham Smith. Obstetric Physicians: Dr. G. F. Blacker and Dr. Cuthbert Lockyer. Physician for Skin: Dr. A. Whitfield. Surgeons: Mr. G. B. M. White, Mr. V. W. Low, Mr. Arthur Edmunds, Mr. C. C. Choyce, and Mr. Gordon Taylor. Ophthalmic Surgeon: Mr. A. H. Payan Dawnay. Throat and Ear Surgeons: Mr. J. Gay French and Mr. H. T. Mant. Dental Surgeon: Mr. C. F. Peyton Baly. Medical Officer in charge of Electrical Department: Dr. Robert Knox. Director of Clinical Pathology: Dr. Ernest H. Shaw.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—This general hospital is in the midst of a densely populated neighbourhood of more than half a million inhabitants. It contains medical, surgical, gynæcological, and children's wards, having in all 125 beds. There are special departments for gynæcological cases, diseases of the eye, ear, throat, and nose, skin diseases, medical electricity and radiography, and dentistry. Operations are performed every afternoon of the week (except Saturday) at 2 30 P.M. Clinical instruction, laboratory classes, and lectures are given daily in the wards and out-patient departments, laboratories, and lecture hall in connexion with the North-East London Post-Graduate College attached. There are four Resident Medical Officers, and Clinical Assistants are appointed under certain conditions. Further particulars in regard to the hospital may be obtained from Mr. H. W. Carson, Secretary to the Medical Committee, 111, Harley-street, W.; or from Dr. A. J. Whiting, Dean of the North-East London Post-Graduate College, 142, Harley-street, W. Consulting Physicians: Sir James Reid, Bart., and Dr. Percy Kidd. Consulting Surgeons: Mr. Hooper May and Mr. Walter Edmunds. Physicians: Dr. R. Murray Leslie, Dr. G. P. Chappel, and Dr. A. J. Whiting. Assistant Physicians: Dr. A. G. Auld and Dr. T. R. Whipham. Surgeons: Mr. H. W. Carson and Mr. J. Howell Evans. Assistant Surgeon: Mr. E. Gillespie. Gynæcologist: Dr. A. E. Giles. Surgeon to Ear, Nose, and Throat Department: Mr. H. D. Gillies. Ophthalmic Surgeon: Mr. R. P. Brooks. Physician for Skin Diseases: Dr. G. Norman Meachen. Physician to Electrical Department: Dr. Metcalfe. Anæsthetists: Dr. C. F. Hadfield, Dr. W. E. Hills, and Dr. Shannon. Bacteriologist: Dr. G. Macdonald. Secretary: Mr. F. W. Drewett.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. (Established 1873).—Physicians: Dr. Fenwick, Dr. Parkinson, Dr. Addinsell, and Dr. Kevin Byrne. Surgeons: Messrs W. McAdam Eccles, Arthur Evans, and H. J. Paterson. Assistant Surgeons: Messrs. James McClure and Chad Woodward. Ophthalmic Surgeon: Mr. J. Stroud Hosford. Physician for Diseases of the Skin: (vacant). Ear, Nose, and Throat Surgeon: Mr. Harold L. Whale. Medical Officer in charge of Electrical Department: Dr. Herbert Rhodes. Dental Surgeon: Mr. A. Alexander. The hospital contains 100 beds. The in-patients in 1912 were 1449, and the out-patients and casualties numbered 27,748 new cases. The medical and surgical practice of the hospital is open to students and practitioners. Operations: Mondays at 2 P.M., Wednesdays and Fridays at 9 A.M.

Hampstead General and North-West London Hospital.—The Hampstead General Hospital (Haverstock Hill) and the North-West London Hospital (Kentish Town) are now amalgamated. The Hampstead General Hospital (114 beds) accommodates the in-patients from the districts hitherto served by both hospitals. The out-patients, with the exception of Hampstead casualty and emergency cases, attend exclusively at the Out-patients Department, Bayham-street, Kentish Town, where there are two Resident Medical Officers as well as resident nurses. Physicians to In-patients: Dr. G. A. Sutherland and Sir John F. H. Broadbent, Bart. Surgeons to In-patients: Mr. J. Jackson Clarke and Mr. J. W. Thomson Walker. Physicians to Out-patients: Dr. C. O. Hawthorne, Dr. A. Manuel, and Dr. F. G. Crookshank. Surgeons to Out-patients: Mr. G. E. Waugh, Mr. Sidney A. Boyd, and Mr. Chad Woodward. Physician for Diseases of the Skin: Dr. S. E. Dore. Gynæcologist: Mr. Bryden Glendining. Ophthalmic Surgeon to In-patients: Sir William J. Collins. Ophthalmic Surgeon to Out-patients: Mr. Malcolm L. Hepburn. Throat and Ear: Mr. H. S Barwell. Dental Surgeon: Mr. C. H. J. Acret. Anæsthetists: Dr. G. A. H. Barton and Mr. Hedley C. Visick. Pathologist: Dr. Herbert W. Perkins. The practice of the hospital is open to qualified medical men. Further particulars from the secretary at the hospital (Haverstock Hill, N.W).

New Hospital for Women, 144, Euston-road, N.W.—Physicians for In-patients: Miss Macdonald, M.B., and Mrs. Fleming, M.D. Surgeons for In-patients: Miss Aldrich-Blake, M.D., M.S., and Miss Chadburn, M.D., B.S. Physicians and Surgeons for Out-patients: Miss Anderson, M.D., B.S., Miss Woodcock, M.D., B.S., Miss Bolton, M.D., B.S., and Miss Hamilton, M.D. Children's Department: Miss Hamilton, M.D. Ophthalmic Surgeon: Miss Sheppard, M.B. Senior Assistants for Out-patients: Miss M. Paine, M.D., Miss Oulteney, M.D., Miss Dunbar, M.D., and Miss Davies-Colley, M.D., B.S. Obstetrician: Miss Turnbull, M.D. Anæsthetists: Miss Browne, L.S.A., Miss Payne, M.D., and Miss Kann, M.B. A considerable number of the students hold posts in the New Hospital under the visiting staff, and in return for much valued clinical teaching they do the work assigned to students in the wards of a general hospital. Secretary: Miss M. M. Bagster.

French Hospital and Dispensary, Shaftesbury-avenue, W.C.—This hospital, which was founded in 1867 to afford medical treatment for poor foreigners who speak the French language, has 74 beds. Physicians: Dr. G Ogilvie and Dr. L. Williams. Physicians to the Out-patients: Dr. H. Dardenne, Dr. Alex. Manuel, and Dr. J. Campbell McClure. Surgeons: Mr. E. Owen, Mr. H. de Méric, and Mr. W. H. Clayton-Greene. Obstetric Physician: Dr. S Sunderland. Ophthalmic Surgeons: Mr. C. Higgens and Mr. G. W. Thompson. Dental Surgeon: Mr. Westley Barritt. Honorary Anæsthetist: Mr. Walter Tyrrell. Anæsthetists: Dr. J. M. Barlet and Dr. Harvey Hilliard.

The French Convalescent Home and Retreat for Aged French People (at Brighton) contains 61 beds. Secretary: Mr. G. Pondepeyre.

German Hospital, Dalston, N.E.—This hospital was founded in 1845 with the object of supplying medical aid to poor people speaking the German language and for cases of emergency and of accident. It has 142 beds, including a sanatorium with nine beds and a convalescent home at Hitchin with 30 beds. Consulting Physician: Sir H. Weber. Consulting Surgeon: (Vacant). Physicians: Dr. F. P. Weber, Dr. K. Fürth, and Dr. K. Rupp. Surgeons: Mr. E. Michels, Mr. J. P. zum Busch, and Mr. G. J. Jenkins. Ophthalmic Surgeons: Mr. R. Gruber and Mr. C. Markus. Anæsthetist: (Vacant). Radiographer: (Vacant). Dental Surgeon: Mr. W. West. Resident Medical Officers: Mr. B. Bauch, Mr. F. Leeser, Mr. M. Baumberger, and Mr. F. Wolf.

Italian Hospital.—This institution was established in 1884 for the maintenance and medical treatment of Italian and Italian-speaking people, irrespective of their religious and political opinions, who may be suffering from sickness or bodily infirmity, but the sick poor of any nationality are also admitted for treatment. The institution also provides surgical and medical relief to Italians and others not being inmates of the hospital. It has 50 beds. Honorary Consulting Physician: Sir Dyce Duckworth, Bart. Honorary Consulting Surgeons: Sir Frederick Treves, Bart., and Mr. George Lenthal Cheatle, C.B. Physicians: Cav. Uff. Dr. F. Melandri, and Cav. Dr. Vincent Dickinson. Assistant Physicians: Dr. G. Tallarico and Dr. Andrew S. Currie. Surgeons: Mr. T. P. Legg and Mr. D. J. Armour. Assistant Surgeon: Mr. D. Giordani. Throat, Nose, and Ear Department: Cav. J. Donelan. Ophthalmic Surgeon: Mr. Stanford Morton. Consulting Dental Surgeon: Cav. J. FitzGerald. Assistant Dental Surgeon: Mr. E. Whishaw Wallis. Anæsthetists: Dr. Hugh Richard Phillips and Dr. R. H. Lee. X Ray Department: Dr. Stanley Melville.

National Hospital for the Paralysed and Epileptic (Albany Memorial), Queen-square, Bloomsbury.—The hospital, with the Finchley branch, contains 200 beds and cots. The physicians attend every Monday, Tuesday, Thursday, and Friday at 2 P.M. In- and out-patient practice at that hour. Consulting Physicians: Dr. Buzzard, Dr. Bastian, Sir D. Ferrier, Sir William Gowers, and Dr. Ormerod. Physicians: Dr. Tooth, Dr. James Taylor, Dr. J. S. Risien Russell, and Dr. Aldren Turner. Physicians for Out-patients: Dr. Batten, Dr. J. S. Collier, Dr F. Buzzard, and Dr. Grainger Stewart. Assistant Physicians: Dr. Gordon Holmes, Dr. Hinds Howell, and Dr. S. A. K. Wilson. Surgeons: Sir Victor Horsley, Mr. Donald J. Armour, and Mr. Percy W. G. Sargent. Ophthalmic Surgeon: Mr. Leslie Paton. Laryngologist and Otologist: Mr. Sydney Scott. Gynæcologist: Dr. Walter Tate. Anæsthetists: Dr. Llewelyn Powell and Dr. Z. Mennell. Clinical clerks are appointed under the in-patient and out-patient physicians. Lectures are given on Tuesdays and Fridays at 3.30. The hospital has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work. All communications concerning clinical appointments, lectures, hospital practice, and fees should be addressed to the Secretary at the hospital.

Hospital for Epilepsy, Maida Vale, W.—Both the in-patient and out-patient departments of this hospital are open free to students and medical graduates. At present no courses of instruction have been arranged, but as soon as they are decided upon particulars will be circulated.

Staff.—Dr. Geo. Ogilvie, Dr. L. G. Guthrie, Dr. Wilfred Harris, Dr. G. F. Johnston, and Dr. H. Campbell Thomson.

West-End Hospital for Diseases of the Nervous System, Paralysis, and Epilepsy, 73, Welbeck-street, W.—Graduates in medicine and senior students may attend demonstrations in the Out-patient Department. No fees are charged. The physicians treating out-patients are: Dr. Harry Campbell, Dr. Frederick S. Palmer, Dr. Eric D, Macnamara, Dr. Purves Stewart, and Dr. Frederick Golla. Dr [illegible] and ear cases. [illegible] o the student who ma[illegible] presents the best thesis after attending at least 25 demonstrations. The examination is held in July.

Bethlem Royal Hospital.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They are permitted to reside in the hospital for a term generally not exceeding six months, commencing May 1st and Nov. 1st, and are provided with apartments, complete board, attendance, washing and a salary at the rate of £100 per annum. They are under the direction of the Resident Physician and are elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners and other students, may attend for a period of three months on payment of a fee. Lectures are also given in connexion with the London School of Clinical Medicine and the London Polyclinic. Resident Physician: Dr. W. H. B. Stoddart. Senior Assistant Physician: Dr. J. G. Phillips. Junior Assistant Physician: Dr. Ralph Brown.

Hospital for Consumption and Diseases of the Chest, Brompton (333 beds).—The hospital contains 333 beds in the two buildings. The Sanatorium at Frimley contains 100 beds and 50 beds for paying patients. Six House Physicians reside in the hospital for a term of six months; their duties include attendance in the out-patient department. Pupils are admitted to the practice of the hospital: terms, £1 1*s.* for one month; three months, £2 2*s.*; perpetual, £5 5*s.* Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will commence *on Oct. 9th.* Courses of instruction are given in the laboratories for one month (£5 5*s.*). Clinical Assistants are appointed to the Assistant

Physicians in the out-patient department and Clinical Clerks to the Physicians in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. Consulting Physicians: Sir Richard Douglas Powell, Dr. F. T. Roberts, Dr. J. M. Bruce, Dr. T. H. Green, Dr. T. D. Acland, Sir J. K. Fowler, Dr. P. Kidd, Dr. R. Maguire, and Dr. H. W. G. Mackenzie. Physicians: Dr. S. H. Habershon, Dr. F. J. Wethered, Dr. P. Horton-Smith Hartley, Dr. J. J. Perkins, Dr. H. Batty Shaw, and Dr. W. C. Bosanquet. *Assistant Physicians*: Dr. R. A. Young, Dr. C. Wall, Dr. W. J. Fenton, Dr. A. J. Jex-Blake, Dr. Charles Miller, and Dr. Burrell. Consulting Surgeon: Sir R. J. Godlee. Surgeon: Mr. S. Boyd. Dental Surgeon: Mr. A. E. Ironside. Surgeon to Throat and Ear Department: Dr. Dundas Grant. Superintendent of Laboratories: Dr. A. C. Inman; X-ray Department: Dr. S. Melville. Resident Medical Officer: Dr. Bernstein.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—During the past year 1115 in-patients have been treated in the wards, and the large number of *44,660 cases since the opening of the wards in 1855.* The number of out-patients treated during 1912 was 12,286 and 794,503 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on application to the Secretary of the Medical Committee at the hospital. Consulting Physicians: Dr. Eustace Smith, Dr. Vincent D. Harris, Sir William S. Church, Bart., Dr. E. Clifford Beale, Dr. Harrington Sainsbury, Dr. G. A. Heron, and Sir Hugh Beevor, Bart. Physicians: Dr. T. Glover Lyon, Dr. W. J. Hadley, Dr. E. H. Colbeck, Dr. Arnold Chaplin, Dr. Hugh Walsham, and Dr. O. K. Williamson. Surgeon: Mr. G. Lenthal Cheatle. Physicians to Out-patients: Dr. Clive Riviere, Dr. T. Lewis, Dr. Eric Pritchard, Dr. Sydney Owen, Dr. Goodman Levy, and Dr. A. C. D. Firth. Laryngologist: Mr. W. G. Howarth. Surgeon Dentist: Mr. Evelyn O. Sprawson. Secretary: Mr. George Watts. Secretary of the Medical Committee: Dr. Sydney Owen.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road. (80 beds.)—This hospital provides accommodation for 80 in-patients. Expenditure for 1912 £7113; income £6530. The attendance of out-patients averages 28,000 annually. Consulting Physicians: Dr. Horace Dobell, Dr. P. J. Hensley, and Professor D. W. Finlay. Physicians: Dr. W. H. White, Dr. A. Davies, Dr. J. Calvert, Dr. M. Leslie, Dr. J. H. Drysdale, and Dr. A. G. Phear. Assistant Physicians: Dr. H. E. Symes-Thompson, Dr. Kenneth Kellie, and Dr. Barty King. Consulting Surgeons: Sir A. Pearce Gould and Mr. W. Turner. Surgeon: Mr. Arthur Evans. Anæsthetist: Dr. G. H. Longton. Clinical Pathologist: Dr. Percy B. Ridge. Dental Surgeon: Mr G. Thomson. Radiographer: Dr. A. C. Jordan. Cardiologist: Dr. A. W. Stott. Resident Medical Officer: Dr. F. W. Hamilton. House Physician: Dr. E. D. Richards. Secretary: Mr. A. T. Mays.

THE MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, HAMPSTEAD AND NORTHWOOD, CENTRAL OUT-PATIENT DEPARTMENT, Fitzroy-square, W.—The Hospitals contain 220 beds. Number of in-patients, 929; out-patients, 3267. Resident Medical Staff. Clinical Demonstrations are given by the Visiting Medical Staff at the Hospital at Hampstead. Clinical assistants are appointed to physicians in the wards and in the out-patient department. Physicians: Dr. J. Edward Squire, C.B., Dr. George Johnston, Dr. T. N. Kelynack, and Dr. T. D. Lister. Secretary: Mr. W. J. Morton. Offices: 7, Fitzroy-square, W.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—This hospital receives about 1800 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one-half of the total admissions. Clinical instruction is given on the more important cases which present themselves. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. Fees: Medical Students, £8 8*s*. for four weeks; Qualified Medical Practitioners, £8 8*s*. for four weeks. Pupil Midwives (including board and lodging), £40 for six months (including one month in the Preliminary Training School), £35 for five months (trained nurses £25 for four months); Pupil Nurses (including board and lodging), £29 for five months (including one month in the Preliminary Training School), £24 for sixteen weeks (trained nurses £18 for 12 weeks). The new Residential College provides accommodation for 5 men at a time, students and qualified practitioners, and is opposite the hospital, with which it is in telephonic communication. Terms for residence and full board, 30*s*. per week. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital. Students join preferably on the first Monday in each month. Arrangements have been made whereby Medical Students can now be admitted to the practice of the hospital in order to receive preliminary instruction in Practical Midwifery in accordance with the recommendations of the General Medical Council. This instruction will include: (1) Practical instruction in the methods of examination of pregnant women; (2) delivery of women in labour under the direct supervision of a Medical Officer of the hospital; (3) practical instruction in *the treatment of the mother and child during the* puerperium, including clinics held twice weekly by the Visiting Medical Staff; and (4) instruction in the Clinical Laboratory of the hospital. The fee for hospital practice will be £5 5*s*. per calendar month. Students will be accommodated at the Residential College adjoining the hospital. Terms for residence and full board, 30*s*. per week. Consulting Physicians: Dr. George B. Brodie, Dr. W. S. A. Griffith, Dr. W. J. Gow, and Dr. T. W. Eden. Physicians to In-patients: Dr. A. F. Stabb, Dr. C. Hubert Roberts, Dr. Thomas G. Stevens, and Dr. R. D. Maxwell. Physicians to Out-patients: Dr. C. White and Dr. J. B. Banister.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with the out-patient department there has been for some years a well-organised Clinical Department. Gentlemen are appointed to act as clinical assistants to the gynæcologists to out-patients. The appointments are open to qualified medical men and women. Every facility is afforded them by the gynæcologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month £2 2*s*.; for each subsequent month the same. The hospital contains 67 beds. In the out-patient department there were over 4000 new cases during the past year, the total number of out-patient attendances being 14,500. This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Applications should be made to the Dean. Consulting Physicians: Dr. C. H. Carter, Dr. E. Holland, and Dr. Richard T. Smith. Consulting Surgeon: Mr. H. A. Reeves. Consulting Surgeon Dentist: Mr. Canton. Gynæcologists: Dr. J. A. Mansell-Moullin, Dr. Bedford Fenwick, Dr. James Oliver, Dr. J. H. Dauber, Dr. T. G. Stevens, and Dr. H. J. F. Simson. Surgeon: Mr. D. Drew. Assistant Surgeon: Mr. L. H. McGavin. Surgeon Dentist: Mr. W. J. May. Anæsthetists: Mr. C. J. Ogle, Dr. M. Horne, and Dr. Pinto-Leite. Pathologist and Registrar: Dr. Trevor B. Davies. Secretary: Alfred Hayward.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—The hospital maintains 124 cots, and on an average 245 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months, subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. W. M. Wilcox, the Secretary, at the hospital. Physicians: Dr. Eustace Smith, Dr. Morley Fletcher, Dr. E. Graham Little, Dr. A. M. Gossage, Dr. Clive Riviere, and Dr. T. Fisher. Surgeons: Mr. W. Trotter and Mr. R. Warren. Assistant Physicians: Dr. O. K. Williamson and Dr. R. S. Frew. Assistant Surgeon: Mr. J. E. Adams. Ophthalmic Surgeon: Mr. F. Juler. Dental Surgeon: Mr. E. S. Pierrepont.

Medical Officer for the Electrical Department Dr Collis Barry. Medical Officer for the Casualty Department Mr V Rich Resident Medical Officer Mr A J Waugh House Physician Mr A J Friedlander House Surgeon Mr E Le Maistre Secretary Mr W M Wilcox

THE HOSPITAL FOR SICK CHILDREN, Great Ormond street W C, contains 240 beds, divided into 95 medical, *105 surgical, and 40 for special and infectious cases, besides* 30 beds at the convalescent branch, Highgate The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students who have completed four years of medical study and also to qualified medical men The medical staff are recognised by the University of London as teachers in Diseases of Children Appointments are made every three months to six medical clerkships, which are open to students of the hospital There is a museum in connexion with the hospital The sessions are of ten weeks' duration and begin in October January, and March Clinical instruction is given daily by members of the visiting staff Fees for hospital practice, one month, £2 2*s* , three months, 5 guineas , perpetual ticket 10 guineas Clinical Clerks, 1 guinea for three months Pathological clerkships —Facilities are afforded for obtaining theoretical and practical instruction in Clinical Pathology and Bacteriology in the Pathological Laboratories Clerks attend for about four hours daily Fees For one month, £3 3*s* , for two months, £5 5*s* , for three months, £6 6*s* A reduction is made in the case of those already holding tickets for general attendance at the hospital Special Post graduate Classes —Special courses of instruction in the Diseases of Children are held three times during the year Fee for each course of six lectures £1 1*s* Surgical Diseases of Children —A special course of instruction in the Surgical Diseases of Children is given on Tuesdays and Fridays, from 5 15 P M to 6 15 P M throughout the year Fee for eight attendances, £1 1*s* Consulting Physicians Sir Thomas Barlow, Bart Dr D B Lees Dr F G Penrose, and Dr A E Garrod Physicians Dr A F Voelcker, Dr W S Colman, Dr F E Batten and Dr G F Still *Physicians to Out patients* Dr F J Poynton, Dr Robert Hutchison, Dr H Thursfield, Dr T Thompson and Dr F Langmead Consulting Surgeons Mr Howard Marsh, Mr Edmund Owen, Mr John H Morgan C V O and Mr Bernard Pitts Surgeons Sir W Arbuthnot Lane, Bart Mr Thomas H Kellock *Mr Edred M Corner*, and Mr G E Waugh Surgeons to Out patients Mr G E Waugh, Mr H A T Fairbank, Mr O L Addison and Mr H T Gray Ophthalmic Surgeon Mr W H McMullen Aural Surgeon. Mr G E Waugh Dental *Surgeon Mr W Warwick James Radiographer* Dr Ironside Bruce Local Medical Officer for Cromwell House Dr A M Henderson Medical Registrar Mr R. R Armstrong Clinical Pathologist and Bacteriologist Dr D Nabarro Anæsthetists Mr Graham Scott, Dr H. S *Sington, Mr O J Loosely, and Mr. H B Wilson* Resident Medical Superintendent. Mr T. T. Higgins Secretary: Mr Stewart Johnson

EVELINA HOSPITAL FOR SICK CHILDREN Southwark-bridge road, S E —This hospital contains 76 cots and a very extensive Out patient Department About ten clinical assistants, to work with the Honorary Medical Staff for Out-patients, are appointed quarterly for a period of three months, there is no salary attached to these posts , but, on the other hand no fees are charged Consulting Physicians Sir J F Goodhart, Bart, Dr Frederick Taylor, and Dr Nestor Tirard Physicians Dr J Charlton Briscoe, Dr T R Whipham, and Dr D Forsyth Physicians in charge of Out patients · Dr H O Mann and Dr O E Zundel F [illegible] nt Dr S Ernest Dore [illegible] vse, Mr R Clement Luc[illegible] S Eve, Mr F C Abbott, Mr A H Tubby, and Mr C H Fagge Consulting Aural Surgeon Mr G N Biggs Consulting Dental Surgeon Mr R D Pedley Surgeons Mr H S Clogg and Mr C A R Nitch Surgeons in charge of Out patients Mr P Maynard Heath and Mr A J Walton Dental Surgeon Mr G G Packe Ophthalmic Surgeon Mr R E Bickerton Aural Surgeon Mr J F O Malley Anæsthetists Mr F. D S Jackson and Mr H M Pinto Leite Radiographer Mr W. N. Kingsbury House Physicians: Mr G. W. B Garrett and Mr. Sidney Smith House Surgeon Mr I W Dickson Secretary H C Stamland Smith

VICTORIA HOSPITAL FOR CHILDREN, Chelsea, S W —The hospital contains 104 beds and has a large out patient department (over 1200 weekly), the home at Broadstairs has 50 beds, and the home at Biggen Hill Kent, has 14 beds Consulting Physicians Sir Francis Laking and Dr Ridge Jones Consulting Surgeons Mr Cowell, Mr Pickering Pick, and Mr D Arcy Power Physicians Dr Walter Carr, Dr Humphry D Rolleston Dr Charles Miller, Dr Reginald Jewesbury, Dr A C D Firth, and Dr E A Cockayne Physician to Skin Department Dr J M H MacLeod Surgeons Mr H F Waterhouse, Mr Joseph Cunning, and Mr Fedde Fedden Surgeons to the Out patients Mr Ralph Thompson Mr C M Page and Mr H Blakeway Ophthalmic Surgeon Mr C Devereux Marshall Dental Surgeon Mr Francis R Smyth Anæsthetists *Dr F Stanley Hewett and Dr W W Wells* Electro Therapeutic and Radiographic Department Dr Stanley Melville Resident Medical Officer Mr R H H Jolly House Surgeon Mr E J Boyd House Physician Mr J S Sloper Secretary Mr H G Evered *Out patients are seen as under —Diseases of the Eye* Wednesday 2 P M Diseases of the Skin Wednesday, 1 30 P M Whooping cough Cases Friday, 2 30 P M Medical and Surgical Cases Mornings at 9 30 Dental Cases Thursday, 1 30 P M Accidents and urgent cases are admitted at any time

[illegible] C[illegible] *Eastern* [illegible] n, N E [illegible] the poor under 12 years of age Established 1867 134 beds in London and 30 at the seaside branch "Little Folks" Home Bexhill —During the past year 1760 in patients and 29 315 out patients (representing 72,731 attendances and including 17,422 casualty cases) were relieved, 545 of the in patients being under two years of age Consulting Physicians Dr W Cayley, Dr W Pasteur, Dr W A Wills, and Dr James Taylor Consulting Surgeons Mr Waren Tay Sir R J Godlee, Bart, Mr Bilton Pollard and Mr H Percy Dean Physicians Dr J Porter Parkinson, Dr Sheffield Neave and Dr R A Chisolm Assistant Physicians Dr Eric Pritchard, Dr Eric Bellingham Smith, Dr Sidney Owen and Dr Alexander Gow Surgeons Mr Douglas Drew and Mr P Lockhart Mummery Assistant Surgeons Mr Stephen Fenwick and Mr Blundell Bankart Ophthalmic Surgeon Mr Sydney Stephenson (Thursday, 2 30 P M) Physician in charge of Skin Department Dr J L Bunch (Wednesday, 1 30 P M) Surgeon in charge of the Ear, Nose and Throat Department Mr J H Connolly (Monday, 10 A M, and Thursday, 9 A M) Dental Surgeons Mr S F Rose (Tuesday, 9 30 A M, and Friday, 2 30 P M) and Mr Price Harris (every morning except Saturday for London County Council school cases) Medical Radiographer Dr R W A Salmond Pathologist and Registrar Dr. A W G Woodforde Resident Medical Officer Dr Cuthbert Verge Four other resident medical men (appointed half yearly)—viz, two House Physicians and two House Surgeons Matron Miss Bushby Secretary Mr T Glenton Kerr The surgeons attend on Wednesdays at 2 P M and Fridays and Saturdays at 9 30 A M, the physicians daily at 2 P M, except Saturday, 9 30 A M, and Wednesday, 9 30 A M, as well as 2 P M A course of clinical demonstrations and lectures, open free to medical practitioners and students *of medicine of* both sexes, will be given during the winter session

THE BELGRAVE HOSPITAL FOR CHILDREN, Clapham road, S W —Clinical Assistants are from time to time appointed to [illegible]

ALEXANDRA HOSPITAL FOR *CHILDREN WITH HIP DISEASE*, Queen square, W C —At this hospital students who have obtained a recommendation from their teachers can attend [illegible] The out- and in patients' [illegible] Thursdays at 3 30 P M. [illegible] and Mr W Girling Ball [illegible] Burroughes.

Surgeon: Mr. F. W. Williams. Secretary: Mr. Beauchamp Wadmore.

Bradford Royal Infirmary, Bradford.—This hospital contains 210 beds. The material passing through the Surgical wards consists of major operations, chiefly abdominal, and gynæcological work, and affords excellent facilities for either students or post-graduates. Plans for a new hospital of 260 beds have been adopted, and the building operations will be commenced as soon as the funds in hand will allow. Consulting Physicians: Dr. Reginald G. Alexander, Dr. Herbert C. Major, and Dr. David Goyder. Physicians: Dr. Henry J. Campbell, Mr. Thomas Wilmot, Dr. Richard Honeyburne, Dr. F. W. Eurich, and Mr. W. Mitchell (in charge of Electrical Department). Consulting Surgeon: Mr. Harry Meade. Surgeons: Mr. Charles F. M. Althorp, Dr. Thomas J. Wood, Mr. John B. Hall, and Mr. James Phillips Consulting Gynæcologist: Dr. A. C. F. Rabagliati. Gynæcologist: Mr. Charles F. M. Althorp. Consulting Laryngologist: Dr. Adolph Bronner. Laryngologist: Dr. Andrew Little. Assistant Surgeons: Mr. Francis W. Goyder and Mr. Peter McEwan. Assistant Physicians: Dr. John B. Dunlop and Dr. William Wrangham. Consulting Dental Surgeon: Mr. Arthur A. Matthews. Dental Surgeon: Mr. H. Alvin Mahony.

The Royal Sussex County Hospital, Brighton (196 beds).—This hospital affords ample facilities for students, possessing a large out-patient department, a library, and a well-appointed clinical research and bacteriological department. The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Committee of Management shall direct. Consulting Physicians: Dr. Rutter, Dr. Hollis, and Dr. Branfoot. Physicians: Dr. J. F. G. Dill, Dr. Hobhouse, and Dr. Maynard. Assistant Physicians: Dr. W. Broadbent, Dr. D. Hall, and Dr. Bailey. Consulting Surgeons: Mr. N. P. Blaker, Mr. W. Furner, and Mr. T. J Verrall. Surgeons: Mr. R. F. Jowers, Mr. F. J. Paley, and Mr. A. H. Buck. Assistant Surgeons: Mr. T. H. Ionides, Mr. W. A. Bowring, and Mr. H. N. Fletcher. Honorary Medical Clinical Assistant: Dr. Rivaz Hunt. Honorary Surgical Clinical Assistant: Mr H. J. Walker. Ophthalmic Surgeon: Mr. W. W. Griffin. Dermatologist: Dr. A. W. Williams. Dental Surgeon: Mr. W. R. Wood. Assistant Dental Surgeon: Mr. T. S. Worboys.

Kent and Canterbury General Hospital, Canterbury.—The hospital contains 104 beds. Pupils of the staff are admitted to the practice of the hospital and have the use of the library of the East Kent and Canterbury Medical Society for £7 7*s*. A Roentgen ray apparatus has recently been given to the hospital, Operation day, Thursday, 11 A.M. Physicians: Dr. Harold Wacher and Dr. M. T. Williams. Consulting Surgeon: Mr. Frank Wacher. Surgeons: Mr. J. Greasley, Mr. Sidney Wacher, Mr. Z. Prentice, and Dr. E. D. Whitehead Reid. Dentist: Mr. R. S. N. Faro. Secretary: Mr. Arthur J. Lancaster.

Derbyshire Royal Infirmary, Derby.—This hospital contains 256 beds. It was founded in 1810, and was entirely rebuilt 1892–1909 on the most modern lines at a cost of over £140,000. There is a separate ophthalmic block of 32 beds, a separate children's block of 30 beds, and a special department for gynæcological cases. There are three resident house surgeons and a resident house physician. There is also a well-equipped Finsen light and X ray department. Registered medical students are admitted to witness the medical and surgical practice on payment of 10 guineas annually. Consulting Physicians: Dr. Charles A. Greaves and Dr. G. Rice. Physicians: Dr. Edmund Vaudrey, Dr. Maurice Parry-Jones, and Dr. Hugh Barber. Consulting Surgeons: Mr. John A. Sharp, Mr. Charles H. Hough, and Mr. John L. Wright. Surgeons: Dr. Richard H. Luce, Mr. John A. Southern, Mr. Francis L. A. Greaves, and Mr. John E. Kilvert. Ophthalmic Surgeon: Mr. Edwin Collier Green. Gynæcologist: Mr. Henry T. Hicks. Anæsthetists: Mr. W. St. A. St. John, Dr. J. D. C. Allen, Dr. J. W King, and Dr. A. D. Hunt. Pathologist: Dr. Hugh Barber. Dental Surgeons: Mr. Charles J. Allin and Mr. J. Montague Murphy.

Royal Devon and Exeter Hospital, Exeter.—Medical and Surgical Staff: Consulting Surgeon: Mr E. J. Domville. Physicians: Dr. H. Davy and Dr. William Gordon. Surgeons: Mr. J. D. Harris, Mr. Charles E. Bell, and Mr. A. C. Roper. Assistant Surgeon: Mr. Brennan Dyball. Assistant Physician and Pathologist: Mr. Reginald V. Solly. Surgical Registrar and Assistant Pathologist: Mr. Robert Worthington. Surgeon Dentist: Mr. J. M. Ackland. Anæsthetists: Mr. Henry Andrew and Mr. J. Shirley Steele-Perkins. The hospital contains 200 beds (including special children's wards) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. Arrangements can be made by which students can attend Midwifery on application to the House Surgeon. There is also a Private Nursing Staff attached to the hospital. For particulars as to fees, &c., apply to the Matron. A new wing was added in 1897. Arrangements may be made by which gentlemen in practice desiring to increase their qualifications may have the use of the museum and library and other facilities and by which students may attend midwifery. A new Operating Theatre was opened in 1906 (the gift of Mrs. Nosworthy of Newlands, Dawlish, Devon). An Electrical Treatment Department (the gift of Mrs. M. A. Sanders) was opened in 1907 by Lady Duckworth-King.

West of England Eye Infirmary, Exeter.—Physician: Dr. William Gordon. Surgical Staff: Mr. A. C. Roper and Mr. Ransom Pickard. Assistant Surgeon: Mr. G. P. Hawker. Secretary: Mr. Sidney E. Whitton. The infirmary contains 64 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1912, 3380.

The Gloucestershire Royal Infirmary and Eye Institution, Gloucester.—This hospital, which was granted the title of "Royal" on the occasion of King Edward VII.'s visit to Gloucester in the year 1909, has 140 beds. Consulting Surgeons: Mr. T. S. Ellis, Mr. R. M. Cole, and Mr. H. E. Waddy. Physicians: Dr. W. W. Grosvenor and a vacant post. Assistant Physician: Dr. D. E. Finlay. Surgeons: Mr. E. Dykes Bower, Mr. W. Washbourn, and Mr. G. W. Ancrum. Ophthalmic Surgeon: Mr. E. Dykes Bower. Assistant Surgeon: Mr. C. V. Knight. Secretary: Mr. H. P. Pike. In-patients, 1526; out-patients, 8876.

North Staffordshire Infirmary and Eye Hospital, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869, is built on the pavilion plan, has accommodation for about 230 patients, including Children's wards, and a special department for the treatment of Diseases of the Eye, a special X Ray and Electrical Department, and a special department for the treatment of Diseases of the Ear, Nose, and Throat, so that there are excellent facilities for acquiring a practical knowledge of the profession. During the last two years, as the result of a special appeal, the sum of nearly £35,000 has been subscribed, and of this about £26,000 has already been spent on new buildings and alterations. A new Out-patient Department, costing £12,000, and a new Children's Ward of 30 beds, are amongst the structural improvements already completed. Further alterations and additions will follow, and the whole institution will shortly be equipped in a thoroughly up-to-date manner. Physicians: Dr. S. King Alcock, Dr. H. Nicholls, and Dr. J. Russell. Surgeons: Dr. Wheelton Hind, Mr. Reginald Alcock, and Dr. W. C. Allardice. Assistant Physicians: Dr. W. E. L. Horner, Dr. G. H. Sowry, and Dr. E. C. Myott. Assistant Surgeons: Dr. Harold Hartley, Mr. Eric E. Young, and Dr. W. Webster. Ophthalmic Surgeon: Mr. Herbert H. Folker. Assistant Ophthalmic Surgeon: Mr. R. H. Dickson. Medical Officers in charge of the Electrical Department: Dr. G. H. List and Dr. A. H. John. Surgeon in charge of Ear, Nose, and Throat Department: Mr. G. A. Carter. Dental Surgeon: Mr. R. J. Hall. Secretary and House Governor: T. Basil Rhodes, M.B., B.S.

Hull Royal Infirmary, Hull.—This hospital contains 249 beds. Consulting Physician: Dr. Edward O. Daley. Consulting Surgeons: Sir John Sherburn, Mr. Thomas M. Evans, and Mr. Robert H. B. Nicholson. Consulting Ophthalmic Surgeon: Dr. W. C. Rockliffe. Physicians: Dr. Frank Nicholson, Dr. Frank O. Eve, and Dr. Edward Turton. Surgeons: Mr Edmund H. Howlett, Mr. Alfred G. Francis, Mr. Henry W. Pigeon, and Mr. Edward Harrison. Ophthalmic Surgeon: Mr. A. Legge Roe. Assistant Ophthalmic Surgeon: Dr. Duncan A. Mackay. Assistant Surgeons: Mr Harold Upcott, Mr. Edward M. Hainworth, Mr. Robert Grieve, and Mr. Guy B. Nicholson. Dental Surgeon: Mr. John C. Storey. Assistant Dental Surgeon: Mr. Arthur W. Turton. Anæsthetists: Mr. Harry L. Evans and Dr. A. T. Sissons.

Leicester Royal Infirmary, Leicester.—Instruction in the infirmary for first-year students is duly recognised by the various examining bodies. At the General Infirmary there are 230 beds, and at the Children's Hospital in connexion 42; total 272. A new wing containing 100 beds was recently opened by H.R.H. the Duchess of Argyll, and a new Nurses' Home containing separate accommodation for 100 nurses has also been opened. A reconstruction scheme has been carried out, and £100,000 spent on bringing the accommodation of the institution to a modern *standard of efficiency. This scheme has included the provision* of two modern operating theatres, as well as a self-contained out-patients' department. The Children's Hospital is now being reconstructed and enlarged by the addition of a third ward to contain 22 cots, at a cost of £11,500. Open-air balconies on all three floors are a feature. A central sterilizing department is being installed. There are eight resident medical officers—viz., two house surgeons, one house physician, two assistant house surgeons, one assistant house physician, and two dressers. All receive salaries. The dressers are given an honorarium of £10 10*s.* on completion of six months' satisfactory service. Consulting Surgeons: Mr. George C. Franklin, Mr. Claude Douglas, and Mr. C. J. Bond. Physicians: Dr. Reginald Pratt, Dr. Astley V. Clarke, and Dr. Robert Sevestre. Surgeons: Mr. Henry J. Blakesley, Mr. Cecil E. Marriott, Mr. J. S. Sloane, and Mr. F. Bolton Carter. Ophthalmic Surgeon: Mr. Nicholas C. Ridley. Aural Surgeon: Dr. Frederick W. Bennett. Physicians to Out-patients: Dr. T. Villiers Crosby and Dr. T. Arnold Johnston (Honorary Pathologist). Surgeons to Out patients: Mr. W. I. Cumberlidge and Mr. J. C. Clare. House Governor and Secretary: Mr. Harry Johnson.

Northampton General Hospital, Northampton.—Two new wings were opened in 1904 and the old buildings entirely renovated and re-arranged. The number of beds is 182. Non-resident pupils are received and have every opportunity of acquiring a practical knowledge of their profession. The fee is £10 10*s.* Pupils can be received at any time. Physicians: Dr. Peverell S. Hichens and Dr. W. M. Robson. Surgeons: Mr. George H. Percival and Dr. R. A. Milligan. Ophthalmic Surgeon: Mr. E Harries Jones. Assistant Surgeon: Mr. N. Blake Odgers. Dental Surgeon: Mr. E. Rogers Bull.

Norfolk and Norwich Hospital, Norwich.—This hospital has 230 beds. Non-resident pupils admitted. Fees: For three months, £3 3*s.*; for six months, £5 5*s.*; as permanent pupil, £8 8*s.* Consulting Physician: Sir P. Eade. Consulting Surgeons: Dr. Beverley and Mr. H. S. Robinson. Physicians: Dr. Barton, Dr. Burton-Fanning, and Dr. Long. Surgeons: Mr. S. H. Burton, Mr. D. D. Day, and Mr. H. A. Ballance. Assistant Physician: Dr. A. J. Cleveland. Assistant Surgeons: Mr. E. W. Everett, Mr. A J. Blaxland, and Mr. J. Burfield. Dental Surgeon: Mr. H. F. White. Electro-Therapeutist: Dr. A. J. Cleveland. Secretary: Mr. F. G. Hazell.

Nottingham General Hospital.—This hospital contains 254 beds. Consulting Physician: Dr. Henry Handford. Physicians: Dr. Charles H. Cattle, Dr. Frank H. Jacob, and Dr. William T. Rowe. Assistant Physicians: Dr. James O. Buckley and Dr. Samuel Ernest Gill. Consulting Surgeons: Mr. Rupert C. Chicken and Mr. Joseph Thompson Surgeons: Dr. H. Owen Taylor, Mr. Alexander R. Anderson, Mr. Robert G. Hogarth, and Mr. W. Morley Willis. Assistant Surgeons: Mr. Charles H. Allen and Mr. Alexander Robert Tweedie. Dental Surgeon: Mr. John Battersby.

South Devon and East Cornwall Hospital, Plymouth.—This hospital contains 158 beds. A second operation theatre has been recently added. Consulting Physician: Dr. R. H. Clay. Physicians: Dr. E. L. Fox and Dr. A. B. Soltau. Consulting Surgeons: Mr. P. Swain and Mr. R. H. Lucy. Surgeons: Mr. W. L. Woollcombe, Mr. H. W. Webber, and Mr. G. F. Aldous. Assistant Physician: Dr. Colin D. Lindsey. Assistant Surgeons: Mr. W. Crosbie Hamilton, Mr. G. C. F. Robinson, and Mr. H. G. Pinker. Pathologist: Dr. W. L. Pethybridge. Physician in charge of X Ray and Finsen Light Department: Dr. W. Cheyne Wilson. Anæsthetists: Mr. C. H. Whiteford and Mr. E. G. Smith. Registrar and Out-patient Anæsthetist: Mr. G. S. Earl. Registrar and Emergency Anæsthetist: Mr. W. L. Hodge. Dental Surgeon: Mr. G. R. Brittan.

The Royal Hospital, Portsmouth (founded 1847).—The number of beds is 158. The hospital has X Ray and Massage Departments. Honorary Physicians: Dr. John Phillips and Dr. W. P. McEldowney. Surgeons: Mr. C. P. Childe, Mr. T. A. M. Forde, and Mr. A. B. Wright. Honorary Anæsthetist: Dr. W. J. Essery. Honorary Assistant Physicians: Dr. J. T. Leon, Dr. E. J. Davis Taylor, and Dr. H. Farncombe. Honorary Assistant Surgeons: Mr. L. Cole Baker, Mr. C. A. Scott Ridout, and Mr. H. Burrows. The hospital is a preparatory School of Medicine and Surgery; *the attendance of pupils at this hospital is recognised* by the Examining Boards. Particulars of the Secretary at the hospital.

Royal Berkshire Hospital, Reading.—This hospital, which contains 188 beds, has been recently enlarged, the additions including a new Out-patient Department, a Casualty Department, an X Ray Department, a Laboratory, an Eye Theatre, and Eye Wards. Consulting Surgeon: Mr. James H. Walters. Physicians: Dr. Francis Hawkins and Dr. William T. Freeman. Assistant Physicians: Dr. George S. Abram and Dr. G. F. Murrell. Surgeons: Mr. William J. Maurice, Dr. J. A. P. Price, and Dr. Lansdown M. Guilding. Assistant Surgeon: Mr. William J. Foster. Aural Surgeon: Mr. Arthur Roberts. Ophthalmic Surgeon: Mr. Richard P. Brooks. Anæsthetist: Mr. R. Ritson. Consulting Dental Surgeon: Mr. Allan L. Goadby. Pathologist: Dr. R. Donaldson.

Salisbury General Infirmary, Salisbury.—This hospital contains 120 beds. Consulting Physician: Dr. G. G. Morrice. Consulting Surgeon: Mr. L. S. Luckham. Physicians: Dr. W. W. Ord and Mr. J. E. Gordon. Surgeons: Dr. C. G. B. Kempe and Dr. E. T. Fison. Assistant Surgeons: Mr. J. Armitage and Mr. T. B. Henderson. Physician in charge of the X Ray Department: Dr. G. E. Thornton. Ophthalmic Surgeon: Mr. P. C. Bardsley. Surgeon Dentist: Mr. F. Gordon. Secretary: Mr. S. B. Smith. In-patients, 94 weekly average; out-patients, 1819, including dental cases 621, ophthalmic cases 341, and X-ray cases 248; attendances on casuals, 3056. Assistant Secretary: Mr. G. F. Henbest.

Salop Infirmary, Shrewsbury.—This hospital has 130 beds. Consulting Physicians: Dr. E. Burd, Mr. R. W. O. Withers, Dr. E. Lycett Burd, and Dr. E. Cureton. Physicians: Dr. H. W. Gardner, Dr. R. H. Urwick, and Dr. C. V. Bulstrode. Consulting Surgeon: Mr. W. Eddowes. Surgeons: Mr. A. Jackson, Mr. H. H. B. MacLeod, and Mr. L. J. Godson. Ophthalmic Surgeon: Mr. C. G. Russ Wood. Pathologist: Dr. Paul Mathews. Radiographer: Mr. W. S. Edmond. Dental Surgeon: Mr. W. E. Harding. Honorary Health Officer: Mr. James Wheatley. Secretary: Mr. Joseph Jenks. In-patients, 1242; out-patients, 2771; out-patients' attendances for the year, 22,374.

Royal South Hants and Southampton Hospital, Southampton.—This hospital contains 130 beds. Physician: Dr. N. E Aldridge. Assistant Physicians: Dr. H. P. Ward, Dr. J. H. P. Fraser, and Dr. B. N. Tebbs. Surgeons Extraordinary: Mr. W. Sims and Mr. A. B. Wade. Surgeons: Mr. H. W. Shettle, Mr. J. R. Keele, and Mr. W. P. Purvis. Assistant Surgeon: Mr. G. H. Cowen. Throat and Ear Surgeon: Mr. W. P. Purvis. Dental Surgeon: Mr. E. G. Robertson. Electro-Therapeutic Department: Dr. N. E. Aldridge. Secretary: Mr. T. A Fisher-Hall. In-patients, 2273; out-patients 12,060. New out-patients' building just completed at the cost of £11,000, [illegible] in memory of her brother.

Infirmary, Stafford.—This

ary Consulting Physician: Dr.

C. Reid and Dr. L. Gray.

Surgeons: Mr. F. M. Blumer and Mr. F. H. Marson. Assistant Honorary Surgeon: Mr. F. N. Cookson. Ophthalmic Surgeon: Mr. A. B. Cridland. Surgeon Dentist: Mr. W. H. Ridge. Secretary: Mr. R. Battle. In-patients, 870; out-patients, 3809.

Royal Hants County Hospital, Winchester.—This hospital has 108 beds. Honorary Consulting Physicians: Dr. W. M. Harman and Dr. H. E. Wingfield. Physicians: Dr. G. F. A. England. Dr. A. E. Bodington. and Dr. G. A. Tullis. Surgeons: Mr. C. Wace. Mr. H. J. Godwin, and Mr. F. J. Child. Honorary Ophthalmic Surgeon: Mr. J. F. Bullar. Honorary Dental Surgeon: Mr. L. M. Balding. Honorary Medical Officer in charge of the X Ray Department: Dr. Norman Aldridge. Secretary: Mr. A. D. White.

* WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—There are 200 beds. Special departments for Children, Gynæcology, Ear, Throat, and Nose Diseases, Electro-therapeutic and X ray departments. There is an excellent library. The resident officers are a resident surgical officer, a resident medical officer, and two house surgeons. Consulting Surgeon: Mr. W. H. T. Winter. Physicians: Dr. H. Malet and Dr. J. A. Codd. Surgeons: Mr. E. Deanesly, Mr. A. H. Hunt, and Mr. W. F. Cholmeley. Assistant Physicians: Dr. A. H. Carter, Dr. E. H. Coleman, and Dr. T. H. Galbraith. Assistant Surgeons: Mr. H. Dent and Mr. C. A. Stidston. Anæsthetists: Dr. E. W. Strange and Mr. David Mann. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations and have every opportunity of acquiring a practical knowledge of their profession. Fees: £3 3*s.* a quarter, £10 10*s.* the first year, and £5 5*s.* subsequent years. A course of Practical Pharmacy is given by the dispenser. Fee £3 3*s.* for three months. Applications should be made to the Secretary of the Medical Committee.

WORCESTER GENERAL INFIRMARY, Worcester.—This hospital has 132 beds. Pupils are taken by members of the Honorary Medical and Surgical Staff. Number of operations last year 1130. New X Ray and Electrical Departments have been recently erected and are now in use. Additional accommodation for the Honorary Staff and Out-patients and also an Outdoor Shelter in connexion with the Children's Ward have been built as a memorial to King Edward VII. Consulting Physician: Dr. M. Read. Physicians: Dr. G. W. Crowe, Dr. H. A. Watson, and Dr. Neville Crowe. Consulting Surgeons: Mr. G. E. Hyde and Mr. T. Bates. Surgeons: Mr. T. P. Gostling, Mr. C. Pollard, and Mr. T. Bates, jun. Secretary: Mr. W. Stallard. In-patients, 1333; out-patients, 5620.

YORK COUNTY HOSPITAL, York.—This hospital contains 150 beds. There are balconies for outdoor treatment and two installations of X Ray apparatus. Consulting Physicians: Dr. Richard Petch and Dr. Richard Turner. Physicians: Dr. William A. Evelyn, Dr. J. S. Gayner, and Dr. G. W. Micklethwait. Consulting Surgeon: Mr. Frederick Shann. Surgeons: Mr. William H. Jalland, Mr. G. Wilfred Gostling, Dr. Noel L. Hood, and Mr. Gerald S. Hughes. Consulting Ophthalmic Surgeon: Dr. Tempest Anderson. Ophthalmic Surgeon: Dr. Peter Macdonald. Assistant Ophthalmic Surgeon: Dr. M. D. Ferguson. Electro-therapeutic Department: Dr. Hinton E. Bateman. Anæsthetist: Mr. Robert Fell. Assistant Anæsthetist: Dr. Stanley Upton. Consulting Dental Surgeon: Mr. Walter Glaisby. Dental Surgeon: Mr. Leonard A. Glaisby.

II.—SCOTLAND.

THE UNIVERSITIES.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

A diploma in Tropical Medicine and Hygiene (D.T.M. and H.) is granted to graduates in Medicine and Surgery of the University of not less than six months' standing, and to Registered Medical Practitioners, who, *having resided in a tropical country*, may be approved by the Senatus, on the recommendation of the Faculty of Medicine. The course of study includes (1) Practical Bacteriology; (2) Diseases of Tropical Climates; (3) Tropical Hygiene; (4) a Practical Course in Medical Entomology and Protozoology and Venomous Animals; and (5) a Course of Clinical Instruction in Tropical Diseases. Any two of these courses may be taken under Extra-academical Teachers and exemption from the latter course may be granted to those graduates who have been engaged for a period of at least 12 months in the treatment of Tropical Diseases in any tropical or subtropical country. The examinations for the diploma, which will embrace all the foregoing subjects, are held in December and July of each year.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin.

No one is admitted to the degrees of *Bachelor of Medicine* and *Bachelor of Surgery* who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of [illegible] They must have attended Clinical [illegible] or courses extending over not less [illegible] courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of 25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, Practical Anæsthetics, Diseases of Children, Diseases of the Larynx, Ear, and Nose, and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have personally conducted, under the superintendence of a registered medical practitioner, 20 cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution and have conducted personally 12 or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz.

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* No returns.

Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany,
not less
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under
practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum, the regulations as

Surgeons' Hall

Each candidate is examined, both in writing and orally, and clinically where the nature of the subject admits — *First*, in *Chemistry, Zoology, Botany and Physics*; second, in Anatomy and Physiology, third, in Materia Medica and *Therapeutics and Pathology*, and fourth, in Surgery, Medicine, Midwifery Forensic Medicine, and Public Health, and clinically in Medicine, Surgery, and Gynæcology in a hospital The examinations are conducted, as far as possible by demonstrations of objects placed before the candidates Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at the first period of examination after they have completed their attendance on the necessary classes

The Senatus, with the approval of the University Court have power, in the case of a candidate who at any other Scottish University has attended a qualifying course of instruction and passed the corresponding examination in any of the subjects comprised in the first division, to determine that such examination shall be accepted as equivalent in whole or in part to the corresponding examination of the University of Edinburgh

In the case of a candidate who has at the University of Edinburgh, or at any University of the United Kingdom, or at any other University specially recognised for the purpose by the University Court completed a course of instruction and passed an examination in Chemistry, Physics, Botany, Zoology, or in Biology (including therein Botany and Zoology), qualifying for a Degree in Science or in Arts the Senatus has power to exempt him from passing the examination in the corresponding subject or subjects comprised in the first division

Candidates who have passed the examinations in the subjects comprised in the first division may be admitted to examination in the subjects of the second division after the end of the sixth term of Medical study

Candidates who have passed the examinations in the
be admitted to
ision after the

Candidates who have passed the examinations in the subjects comprised in the third division may be admitted to examination in the subjects of the fourth or final division at such time and under such conditions as the Senatus, with the approval of the University Court shall determine Provided always that no candidate shall be admitted to the final examinations in Medicine Surgery, and Midwifery, prior to

Medicine
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ivision of
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Physics,
, for the Second Division (Anatomy and Physiology) £5 5*s*, f
and Materia Medica and T
Final Division (Surgery and
Clinical Medicine Midwi
Forensic Medicine and Pub

Bachelors of Medicine and *Bachelors of Surgery* may proceed to the degrees of *Doctor of Medicine* and *Master of Surgery* after they have spent one year in the medical or surgical wards respectively of a hospital, or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice In each case an examination must be passed and a thesis submitted for approval of the Faculty The fee to be paid for the degree of M D is £15 15*s*, and the fee to be paid for the degree of Ch M. is £15 15*s*

Diploma in Psychiatry —Courses of instruction have also been instituted for a Diploma in Psychiatry, open to all
who conform with the
examinations for the

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System, ar
Diseases,
subjects of Psychology with Experimental Psychology, Clinical Neurology, and Psychiatry (systematic and clinical) The fee for each examination shall be £5 5*s*

Professors—Chemistry James Walker, D Sc, F R S. *Zoology*. J Cossar Ewart M D Botany I Bayley Balfour, M D Physiology Sir E A Schäfer, F R S Anatomy Arthur Robinson M D Pathology James Lorrain Smith, M D Materia Medica Sir Thomas R Fraser, M D, F R S Forensic Medicine Harvey Littlejohn, M B, F R C S E Public Health C Hunter Stewart, M B D Sc Midwifery: Sir John Halliday Croom M D Surgery Alexis Thomson, M D, F R C S E Medicine John Wyllie, M D Clinical Surgery F M Caird, M B F R C S Clinical Medicine: Sir Thomas R Fraser and J Wyllie M D

Scholarships and Prizes —In the University of Edinburgh many bursaries, scholarships, prizes, &c, are given, some of which, by the nature of the subject or by the conditions attached, are restricted to Medical Students, while others are open to Students in two or more Faculties, of which Medicine may be one In the following list the money value, the subjects of examination, or other system of selection and any special conditions that may be imposed, are placed in that order As "continued study" is a condition in a considerable proportion of the cases it has not been thought necessary to repeat these words

For Students entering on or in their First Year —Sibbald Bursaries for entrants, one or two annually, tenable for three years, each £30 per annum, Preliminary Subjects, Heriot Bursaries for entrants, seven for men and one for women annually, tenable for three years, each £30 per annum, Preliminary Subjects, Thomson Bursary, £25 per annum, tenable for four years, Distinction in Medical Preliminary Examination Grierson Bursary No 1, £20, Distinction in Medical Preliminary Examination, Crichton Bursaries, six annually tenable for four years, each £50 per annum, Distinction in Medical Preliminary Examination with extra subjects birth in Scotland, Mackie Bursary No 1, tenable for two years £30 per annum vote of Faculty, need of pecuniary aid Junior J A Carlyle Bursary, £28, Class Examinations in Anatomy and Chemistry, Coldstream Memorial Scholarship for intending Medical Missionaries, tenable for five years £25 per annum, three Vans Dunlop Scholarships Nos 1 2 and 3 each tenable for three years, £100 per annum one for first place in Medical Preliminary Examination one for Chemistry and Physics one for Botany and Zoology Thomson Scholarship tenable for four years, £40 per annum Botany Zoology and Mechanics, Whiteside Bruce Bursary about £44 tenable for one year Class Examinations in First Professional Subjects

For Students entering on or in their Second Year —Mackie Bursary No 2 tenable for two years £30 per annum, vote of Faculty need of pecuniary aid Grierson Bursary No 2, £20 Chemistry Botany Zoology and Physics, Senior J A. Carlyle Bursary £28 Class Examinations in Anatomy and Physiology Sibbald Scholarship tenable for three years, £40 per annum Chemistry Botany Zoology, and Physics, Neil Arnott Prize £37 10*s* Distinction in Natural Philosophy in the M A Examination

For Students entering on or in their Third Year — Grierson Bursary No 3 £20 Anatomy and Physiology Vans Dunlop Scholarships Nos 4 and 5 tenable for three years, £100 per annum one in Physiology and one in Anatomy

For Students entering on their Fourth or Fifth Year or for Graduates —Syme Surgical Fellowship tenable for two years, £100 per annum, Thesis by M B of not more than three years' standing, Goodsir Memorial Fellowship, tenable for two years, £100 per annum Thesis by M B, &c, of not more than three years' standing, Leckie Mactier Fellowship, tenable for three years, £80 per annum, competition among M B's of not more than three years' standing, Freeland Barbour Fellowship, £100 highest marks in Anatomy Physiology, and Pathology in Professional Examinations with one year's research in Midwifery as a condition, Allan

Fellowship, about £55, Clinical Medicine and Clinical Surgery; three Vans Dunlop Scholarships, Nos. 6, 7, and 8, tenable for three years, £100 per annum, one in Pathology and Surgery, one in Materia Medica and Medicine, and one in Forensic Medicine, Public Health, and Midwifery; Murchison Memorial Scholarship, interest on £1000, Clinical Medicine; Stark Scholarship, £112, Clinical Medicine, with Research in Clinical Medicine as a condition; Buchanan Scholarship, £40, Midwifery and Gynæcology, with work in gynæcological ward as a condition; James Scott Scholarship, £32 10*s.*, Midwifery, with work in maternity hospital as a condition; Ettles Scholarship for the most distinguished M.B., Ch.B. of the year, £31; Crichton Research Scholarships in Anatomy, Physiology, Materia Medica, and Pathology, tenable for one, two, or three years, £100 each per annum, competition among graduates; Mouat Scholarship, £55 and medal, Class and Degree Examinations in Practice of Physic; two Grierson Bursaries, Nos. 4 and 5, £10 each, one in Materia Medica and one in Pathology; McCosh Graduate's Bursary and McCosh Medical Bursary for Research, income of £5500, Distinction in Professional Subjects and Knowledge of Foreign Languages, with the condition of Study or Research in Medical Schools of Europe; Gunning Victoria Jubilee Prizes, four awarded annually, each £50, Thesis or Original Research in Anatomy, Physiology, Zoology, Botany, Chemistry, Materia Medica, Surgery, Practice of Physic, Pathology, Obstetrics, Medical Jurisprudence, and Public Health respectively; Theses Gold Medals for the best Theses for the M.D. degree; Conan Doyle Prize for the most distinguished Graduate of the year from South Africa, £32; Wightman Prize, £12, Clinical Reports on Medical Cases; Beaney Prize, £32 10*s.*, highest marks in Anatomy, Surgery, and Clinical Surgery, in M.B. and Ch.B. Examinations; Annandale Gold Medal awarded to the best candidate in Clinical Surgery for the degrees of M.B., Ch.B.; Ellis Prize, £28, Essay on Animal or Vegetable Physiology; Cameron Prize, for the most valuable addition to Practical Therapeutics during the preceding five years, annual proceeds of £2000; Milner Fothergill Gold Medal, about £20, Essay on Pharmacological or Therapeutic subject; Mackay Smith Scholarship for Students in Chemistry, tenable for two years, £25 per annum; Houldsworth Scholarship for Students or Graduates, £40, Materia Medica, with the condition of Research in Pharmacology; Mackenzie Bursaries, two annually, £20, Practical Anatomy; Pattison Prize, about £11 7*s.* 6*d.*, Clinical Reports of Surgical Cases; Dobbie Smith Gold Medal for a Botanical Essay; Anderson Henry Prize for a Botanical Essay, proceeds of £300 accumulated for three years; Cunningham Memorial Medal to the most distinguished Student of Anatomy; Wellcome Gold Medal and £10 and Wellcome Silver Medal and £5 for best essays on History of Medicine; Straits Settlements Gold Medal for best thesis on Tropical Subject during a period of three years; Dorothy Gilfillan Memorial Prize for the most distinguished Woman Graduate of the year, about £10.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that about 1000 students avail themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards. A post-graduate vacation course will be held during August and September.

The anatomy rooms and laboratories will open on Wednesday, Oct. 1st, and the lectures will commence on Oct. 7th.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school, including the classes of Clinical Medicine and Clinical Surgery. The regulations require that the fee for any class taken for graduation in Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for graduation at the University of London may be taken in this school.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have held the office of clerk in their wards for at least six months. Six Residentships are appointed for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital. In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland, and they receive similar certificates at the close of each session. Moreover, the University and College authorities in Edinburgh and the Governing Board of the school call upon each recognised lecturer to supply them at the close of each session with a statement giving the number of students attending the class, the number of lectures or prelections delivered during the session, the class examinations held, and the general mode of conducting the class. The courses on special non-qualifying subjects have for the last quarter of a century formed a marked feature of the school. Indeed, such medical subjects could be studied in Edinburgh only in this school until lately, when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye, Insanity, and Diseases of Children to take charge of classes intra-murally. A list of the classes and lecturers will be found below. Special courses of instruction for dental students and for women are also included in the curriculum of this school. The classes of the school are conducted in several separate buildings, such as at Surgeons' Hall, Nicolson-square, and the New School, Bristo-street.

Lecturers and Fees.—Winter Session: Anatomy, Practical Anatomy, and Demonstrations, Dr. Ryland Whitaker (£3 5*s.* and £4 4*s.*); Chemistry (Practical, &c.), Mr. Gemmell and Dr. T. W. Drinkwater*; Physiology (Institutes of Medicine), Dr. Alex. Goodall (£3 5*s.*); General Pathology, &c., Dr. James Miller (£3 5*s.*); Biology, Mr. Malcolm Laurie (£3 5*s.*); Zoology, Mr. Malcolm Laurie and Mr. H. Miller †. Physics, Dr. Dawson Turner (£3 3*s.*); Meteorology, Dr. Dawson Turner (£2 2*s.*); Bacteriology, Dr. Taylor Grant and Dr. James Miller; Practice of Physic, Dr. Byrom Bramwell, Dr. R. A. Fleming, Dr. E. Bramwell, and Dr. A. Dingwall Fordyce (£3 5*s.*); Surgery, Mr. Scot Skirving, Mr. Chiene, Mr. H. Wade, Mr. J. W. Struthers, Mr. W. J. Stuart, and Mr. L. Beesly (£3 5*s.*); Materia Medica, &c., Dr. Craig, Dr. F. D. Boyd, and Dr. J. Orr † (£3 5*s.*); Midwifery, &c., Dr. Hart, Dr. Ballantyne, Dr. Haig Ferguson, Dr. Fordyce, Dr. Elsie Inglis, Dr. McGibbon, Dr. Barbour Simpson, and Dr. Davidson (£3 5*s.*); Medical Jurisprudence, &c., Dr. Aitchison Robertson and Dr. Macmillan (£3 5*s.*); Public Health, Dr. Aitchison Robertson, Dr. W. Robertson, and Dr. Macmillan; Hospital Practice (Edinburgh Royal Infirmary): Physicians, Sir R. W. Philip, Dr. W. Russell, Dr. Lovell Gulland, Dr. Graham Brown, and Dr. Brewis for Gynæcology; Surgeons, Mr. Cathcart, Mr. Hodsdon, Mr. Wallace, Mr. Miles, and Mr. Dowden (perpetual hospital ticket, £12); Clinical Medicine, Sir R. W. Philip, Dr. W. Russell, Dr. Lovell Gulland, Dr. Graham Brown, and Dr. Brewis for Gynæcology (£3 5*s.*); Clinical Surgery, Mr. Cathcart, Mr. Hodsdon, Mr. Wallace, Mr. Miles, and Mr. Dowden, (£3 5*s.*); Tuberculosis, Sir R. W. Philip (Clinical), Dr. Miller (Pathological); Vaccination, Dr. Buist† and Dr. W. G. A. Robertson (£1 1*s.*); Diseases of Ear, Nose, and Throat. Dr. J. Malcolm Farquharson and Dr. J. S. Fraser (£2 2*s.*); Diseases of the Eye, Dr. J. V. Paterson (£2 2*s.*); Ophthalmoscopy, Dr. A. H. H. Sinclair (£2 2*s.*); Gynæcology, Dr. Haig Ferguson and Dr. Elsie M. Inglis (Systematic), Dr. Brewis and Dr. J. Haig Ferguson (Clinical), and Dr. J. W. Ballantyne (Advanced) (£2 2*s.*); Neurology, Dr. J. J. Graham Brown (£2 2*s.*); Medical Electricity, Dr. Dawson Turner (£2 12*s.* 6*d.*); Tropical Diseases, Major D. G. Marshall, I.M.S. (£2 2*s.*). Summer Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£2 2*s.*); Practical Physiology, Dr. Goodall (£3 3*s.*); Biology, Mr. M. Laurie ‡ and Dr. Newbigin (£3 3*s.*); Practical Chemistry and Analytical Chemistry, Mr. Gemmell and Dr. Drinkwater §; Practical Bacteriology, Dr. Taylor Grant, and Dr. James Miller; Materia Medica, Dr. Craig, Dr. F. D. Boyd, and Dr. J. Orr; Diseases of the Eye, Dr. J. V. Paterson (£2 2*s.*); Medical Psychology and Insanity, Sir J. Batty Tuke and Dr. John Keay (£2 2*s.*); Medical Jurisprudence, Dr. Aitchison Robertson, and Dr. J. Macmillan: Public Health, Dr. Wm. Robertson (£2 2*s.*); Gynæcology, Dr. Brewis (£2 2*s.*); Midwifery Lectures, Dr. Ballantyne, Dr. Haig Ferguson, Dr. W. Fordyce, Dr. Elsie Inglis, Dr. McGibbon, Dr. Barbour Simpson, and Dr. Davidson (£3 5*s.*); Operative Surgery, Mr. Scot Skirving, Mr. Chiene, Mr. H. Wade, Mr. J. W. Struthers, Mr. W. J. Stuart, and Mr. L. Beesly

(£3 3s), Practical Pathology, Dr James Miller (£3 8s), Physics, Dr Turner[‡] (£3 3s), Practical Medicine and Physical Diagnosis, Dr Fleming and Dr Harry Rainy (£3 3s), Clinical Medicine, Sir R W Philip Dr Russell, Dr Gulland, Dr Graham Brown, and Mr Brewis for Gynæcology (£3 3s), Vaccination, Dr Buist and Dr W G A Robertson (£1 1s), Neurology, Dr Graham Brown, Diseases of Ear, Nose, and Throat, Dr J Malcolm Farquharson and Dr J S Fraser (£2 2s), Tropical Diseases, Major D G Marshall, I M S (£2 2s), Medical Electricity, Dr Dawson Turner, Meteorology, Dr Dawson Turner, Tuberculosis Sir R W Philip (Clinical) and Dr Miller (Pathological)

Special Classes for Women, Winter Session Practical Anatomy and Demonstrations, Dr Ryland Whitaker (£4 4s), Chemistry (Lectures and Practical) Dr T W Drinkwater (£3 5s and £3 3s), Practice of Physic, Dr E Matthew (£3 5s), Surgery, Mr Beesly (£3 5s), Midwifery and Diseases of Women, Dr J W Ballantyne, General Pathology, Dr James Miller (£3 5s), Physiology (Institutes of Medicine), Dr Goodall (£3 5s), Materia Medica &c, Dr Craig (£3 5s), Clinical Medicine, Dr J J Graham Brown, Royal Infirmary (£3 5s), Clinical Surgery, Mr Dowden, Royal Infirmary (£3 5s), Physics, Dr Dawson Turner (£3 3s), Vaccination, Dr W G A Robertson (£1 1s), Practical Gynæcology Dr Brewis (£2 2s), Diseases of the Eye Dr J V Paterson, Bacteriology, Dr J Taylor Grant, Tropical Diseases, Major D G Marshall, Fevers, City Hospital Summer Session Practical Anatomy, Dr Ryland Whitaker (£2 2s), Practical Chemistry, Dr T W Drinkwater (£3 3s), Materia Medica, &c, Dr Craig (£3 3s), Operative Surgery and Surgical Anatomy, Mr Beesly (£3 3s), Materia Medica and Therapeutics, Dr Wm Craig (£3 3s), Practical Materia Medica, Dr Wm Craig, Medical Jurisprudence and Public Health, Dr Aitchison Robertson (£3 5s), Public Health Dr W Robertson, Clinical Medicine Dr J J Graham Brown, Clinical Surgery, Mr Dowden, Royal Infirmary (£3 5s), Practical Physiology and Histology, Dr Goodall (£3 3s), Practical Pathology, Dr James Miller (£3 3s), Biology, Dr Newbigin (£3 3s), Physics, Dr Dawson Turner (£3 3s), Ophthalmology, Dr Sym (£2 2s), Insanity, Sir J Batty Tuke and Dr John Keay (£2 2s), Practical Gynæcology, Dr J W Ballantyne (£2 2s), Practical Medicine Clinical Methods Dr W Russell, Vaccination, Dr W G A Robertson, Tropical Diseases, Major Marshall, Medical Electricity, Dr Dawson Turner

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £115, payment of which is distributed over the period of study There is no composition fee

Further particulars regarding the school, also its calendar, may be had on application to the Dean of the School, 11, Bristo place, Edinburgh

[*] Lectures £3 5s Practical £3 3s Analytical, £2 a month or £5 for three months [†] Also in Summer Session [‡] Also in Winter Session [§] Practical £3 3s Analytical £2 a month or £5 for three months

N B—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined but each gives an independent course

THE EDINBURGH SCHOOL OF MEDICINE FOR WOMEN—The Edinburgh School of Medicine for Women provides all [illegible] iculum The classes [illegible] Medicine, for the [illegible] the Triple Qualifica [illegible] specially recognised by the Court of Edinburgh University for the education of women who propose taking the degree in medicine of the University of Edinburgh Most of the classes are held in Surgeons' Hall The office of the school and a sitting room and other conveniences are provided in the same building for the use of the women students The clinical instruction of the students is conducted in the wards of the Royal Infirmary, specially set apart for the purpose, in the Royal Hospital for Sick Children, in the City Hospital for Infectious Diseases, at Bangour Asylum, and at the various public dispensaries The fees and the regulations as to the course of study are the same as for the male students Further particulars can be obtained from the Dean of the School of Medicine for Women, Surgeons' Hall, Edinburgh

Clinical Instruction—ROYAL INFIRMARY, Edinburgh—This hospital has 921 beds and 42 cots for children, the average daily number of patients for 1912 being 856 Courses of Clinical Medicine and Surgery are given by professors of the University of Edinburgh and by the ordinary physicians and surgeons Special instruction is given on Diseases of Women, Physical Diagnosis, Diseases of the Skin, Diseases of the Eye, the Ear, *the Larynx, and the Teeth* Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the [illegible] logical Anatomy and Histology The fees for hospital attendance are as follows—viz Perpetual ticket, in one payment, £12, annual ticket £6 6s, six months, £4 4s, three months, £2 2s monthly, £1 1s Separate payments amounting to £12 12s entitle the student to a life ticket No fees are paid for any medical or surgical appointment The appointments are as follows—1 Resident physicians and surgeons are appointed and live in the house free of charge The *appointment is for six months* but may be renewed at the end of that period by special recommendation 2 Non resident house physicians and surgeons and clinical assistants are appointed for six months The appointment may be renewed for a like period by special recommendation 3 Clerks and dressers are appointed by the physicians and surgeons These appointments are open to all students and junior practitioners holding hospital tickets 4 Assistants in the Pathological Department are appointed by the pathologist

Staff—Consulting Physicians Sir James Affleck Dr Alexander James, Dr Byrom Bramwell, and Emeritus Professor W S Greenfield Physicians Sir Thomas R Fraser, Dr John Wyllie, Sir R W Philip Dr William Russell, Dr Lovell Gulland, Dr Graham Brown, and Dr F D Boyd Assistant Physicians Dr R A Fleming, Dr Harry Rainy, Dr Chalmers Watson Dr Edwin Bramwell, Dr Edwin Matthew Dr W T Ritchie Dr John Eason, and Dr John D Comrie Consulting Surgeons Mr A G Miller Dr C W MacGillivray Emeritus Professor John Chiene, C B and Mr J M Cotterill Surgeons Mr F M Caird, Mr G W Cathcart, Mr J W B Hodsdon, Mr David Wallace, Mr Alexis Thomson, Mr Alexander Miles, and Mr John W Dowden Assistant Surgeons Mr A A Scot Skirving, Mr George L Chiene Mr W J Stuart, Mr J W Struthers, Mr Henry Wade, Mr E Scott Carmichael Mr D P D Wilkie, Mr L C Peel Ritchie, and Mr Denis Cotterill Consulting Gynæcologists Professor Sir Halliday Croom and Emeritus Professor Sir A R Simpson *Gynæcologists* Dr A H F Barbour and Mr N T Brewis Assistant Gynæcologists Dr J Haig Ferguson and Dr William Fordyce Consulting Physician to the Skin Department Dr W Allan Jamieson Physician to the Skin Department Dr Norman Walker and Dr Fred Gardiner Assistant Physician to the Skin Department Dr R Cranston Low *Consulting Surgeons to the Ophthalmic Department* Mr George A Berry and Dr George Mackay Surgeons to the Ophthalmic Department Dr W G Sym and Dr J V Paterson Assistant Surgeons to the Ophthalmic Department Dr A H H Sinclair and Dr H M Traquair Consulting Surgeons to the Ear and Throat Department Dr P M Bride and Dr R M Kenzie Johnston Surgeons to the Ear and Throat Department Dr A Logan Turner and Dr J Malcolm Farquharson Assistant Surgeons to the Ear and Throat Department Dr John S Fraser and Dr John D Lithgow Consulting Surgeon to the Dental Department Mr William Guy Surgeon to the [illegible] Gibbs Extra *Medical* Elec[illegible] Dr Dawson Turner Medical [illegible] Fowler and Dr Archibald [illegible] Consultant Pathologist Professor Lorrain [illegible] Theodore Shennan Assistant [illegible] ller, Dr A Murray Drennan and Dr D Murray Lyon

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes road, Edinburgh—This hospital contains 120 beds, and is fitted with every modern improvement A fully equipped out patient department (medical and surgical) is conducted daily in a building adjoining the hospital [illegible] is open to students of the Junior Anatomy Class during Winter Session 1913-14.

The Winter Session will open on Monday, Oct. 13th, 1913, and will close on Thursday, March 19th, 1914.

The Summer Session will open on Tuesday, April 21st, 1914, and will close on Tuesday, June 30th, 1914.

St. Mungo's College and Glasgow Royal Infirmary.—This College was incorporated in 1889. The Glasgow Royal Infirmary was founded in 1791. The Faculty of Medicine of the College occupies buildings erected for the purposes of a medical school, adjoining and communicating with the Royal Infirmary. The Laboratories, Museums, and Lecture-rooms are equipped and adapted to modern scientific requirements. A complete electric light installation has been added and a powerful Educational Lantern has been provided for demonstration purposes. The Royal Infirmary, which is at the service of the College for the purpose of clinical and practical instruction, is one of the largest hospitals in the kingdom. The winter session will open on Monday, Oct. 13th.

Psychological Medicine.—Practical instruction is given in Hawkhead Asylum, situated within a short distance of Glasgow and having accommodation for 850 patients. Eight resident clinical clerks are appointed annually. These clerkships are open to students attending St. Mungo's College.

Clinical Instruction in Fevers.—Classes are conducted by Dr. Johnston, Superintendent, at the City of Glasgow Fever Hospital, Belvidere, and Dr. Brownlee, Superintendent, at the City of Glasgow Fever Hospital, Ruchill.

Clinical Instruction in Midwifery.—The close proximity of the Maternity Hospital enables the Professor of Midwifery to conduct frequent clinical demonstrations there during the summer session.

The classes in St. Mungo's College qualify for the English, Scotch, and Irish Conjoint Boards and, under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years), and Preliminary Examination, are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

The fee for each class is £2 2*s.*, except Zoology and Botany, joint fee £3 3*s.*, Anatomy, Winter Session, £4 4*s.*, Pathology, £4 4*s.*, Physics, £2 4*s.* 6*d.*, Public Health Laboratory, £12 12*s.*, and certain extra classes for which the fee is £1 1*s.* The hospital fee (including clinical lectures) is £21 for a perpetual ticket.

The classes in St. Mungo's College are now open to male and female students equally.

The minimum fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons amount to £65. Further particulars can be obtained from a syllabus which may be procured free on application to the Secretary of the Medical Faculty, 86, Castle-street, Glasgow.

Glasgow Western Medical School.—This School is situated in University-avenue, opposite the principal gate of the University and near the Western Infirmary. Lectures and Demonstrations are given on Chemistry, Anatomy, Medicine, Surgery, Midwifery and Gynæcology, Ophthalmology, and Dermatology. Some of the classes qualify for graduation and for Scotch diplomas.

Class Fees.—For each course of Lectures the fee is £2 2*s.*, or in some cases £1 1*s.* There is no matriculation fee.

Lecturers: Winter Session.—Chemistry: (vacant); Anatomy: Dr. D. T. C. Frew, at 4 P.M.; Surgery: Dr. David Dickie, at 12 noon; Midwifery: Dr. Balfour Marshall, at 2 P.M.; Medicine: Dr. Hugh Morton, at 3 P.M.; Dermatology: Dr. Goodwin Tomkinson.

Summer Session.—Chemistry: (vacant); Anatomy: Dr. Frew, at 4 P.M.; Operative Surgery: Dr. Dickie, at 12 noon; Gynæcology: Dr. Balfour Marshall, Tuesday, Thursday, and Friday, at 2 P.M.; Medicine: Dr. Morton, at 8 A.M.; Ophthalmology: Dr. Hinshelwood, Tuesday and Friday, at 8 A.M. and 3 P.M.; Dermatology: Dr. Goodwin Tomkinson. Some of the above hours are liable to alteration. Further particulars can be obtained from the Secretary, Mr. J. N. Morton, 58, Bath-street.

Queen Margaret College, University of Glasgow.—Queen Margaret College was founded in 1883 by the Glasgow Association for the Higher Education of Women (instituted in 1877), and handsome buildings and grounds near the University were presented to the College in 1884 by Mrs. John Elder. In 1890 a School of Medicine for women was added to its Arts Faculty. In 1892, when the Universities Commissioners issued an ordinance empowering the Scottish University Courts to make provision for the instruction of women, the Council of the College and Mrs. Elder transferred to the University the College, its buildings, grounds, and endowments, on condition that these should be devoted to the maintenance of University classes for women only. The College then became the Women's Department of the University of Glasgow; its classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish university, women students graduated in medicine in Glasgow University. 173 women have now taken the degree of M.B., C.M., or M.B., Ch.B. of the University of Glasgow and 17 the degree of M.D. The women students study Physics, Zoology, Botany, Physiology, Materia Medica, Medical Jurisprudence, and Public Health in the University Buildings at Gilmorehill; Chemistry and Anatomy at Queen Margaret College; Pathology, Surgery, Medicine, and Gynæcology at the Royal Infirmary. Excellent facilities for clinical work are given in the Royal Infirmary, in the Maternity, and other hospitals. By a gift of £5000 granted for the purpose by the Bellahouston Trust the University Court was enabled to add to the College a large building for the study of Anatomy and other medical subjects. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. There is a house of residence for the students of the College coming from a distance.

Royal Infirmary, Glasgow.—This infirmary, which is the largest in Glasgow, is situated in Cathedral-square, Castle-street, and has car communication with every part of the city. The ancient connexion between the University of Glasgow and the Royal Infirmary was revived in 1911 when the following University Chairs were established at the infirmary: The Muirhead Chair of Medicine, Dr. W. K. Hunter; the St. Mungo Chair (Notman) of Pathology, Dr. John H. Teacher; the St. Mungo Chair of Surgery, Dr. Robert Kennedy; the Muirhead Chair of Obstetrics and Gynæcology, Dr. J. M. Munro Kerr. The following University Lectureships have also been established at the infirmary—viz., of Ophthalmology, Dr. Maitland Ramsay; of Clinical Surgery, Mr. Adams, Mr. Newman, and Mr. McGregor; of Clinical Medicine, Dr. Cowan, Dr. Mackenzie Anderson, and Dr. Wm. R. Jack; of Venereal Diseases, Mr. David Newman. Assistant, Mr. David Watson. St. Mungo's College is situated in the infirmary grounds. The infirmary has, including the Ophthalmic Department, about 670 beds, the average number occupied in 1912 being 673. When the rebuilding of the infirmary, now in progress, is completed the beds will number about 700. There are special beds and wards for diseases of women, of the throat, nose, and ear, skin, venereal diseases, burns, and septic cases. Wards are set apart for the teaching of Women Students. At the Out-door Department the attendances in 1912 numbered over 180,000. In addition to the large medical and surgical departments there are departments for special diseases—viz., diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. Five house physicians and nine house surgeons, having a legal qualification in medicine and surgery, who board in the hospital free of charge, are appointed every six months. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable. There is a modern and fully equipped Electrical Pavilion, and year by year the latest and most approved apparatus for diagnosis and treatment has been added. The fees are as follows:

(*a*) For hospital practice, including attendance at the out-door department, at the pathological department, post-mortem examinations, and the use of the museum: Perpetual ticket, £7; six months, £2 2*s.*; three months, £1 1*s.*; separate payments amounting to £7 7*s.* entitle the student to a perpetual ticket, on return of previous season tickets; (*b*) for Clinical Lectures, six months, £3 10*s.*; three months, £1 15*s.*; (*c*) Vaccination, £1 1*s.*; Pathology, £4 4*s.*; Bacteriology, £2 2*s.*

Staff.—Visiting Physicians: Dr. W. K. Hunter, Dr. John M. Cowan, Dr. Mackenzie Anderson, Dr. Wm. R. Jack (and a vacancy). Visiting Surgeons: Mr. J. A. Adams, Mr. David Newman, Mr. J. H. Pringle, Mr. H. Rutherfurd, Mr. Peter Paterson, Mr. A. N. McGregor, and Dr. Robert Kennedy. Assistant Physicians: Dr. John Henderson, Dr. James Scott, and Dr. Archd. W. Harrington. Assistant Surgeons: Mr. John Patrick, Mr. John A. C. Macewen, and Mr. Thomas Kay. Dispensary Physicians: Dr. Campbell S. Marshall, Dr. John T. Maclachlan, Dr. D. H. Macphail, Dr. Arthur Crawford, Dr. David Macdonald, and Dr. John G. Middleton. Dispensary Surgeons: Mr. A. G. Faulds, Mr. James Battersby, Mr. Donald Duff, Mr. Alex. J. Couper, Mr. Milne McIntyre, and Mr. Robert S. Dewar. Extra Dispensary Physician: Dr. William Watson. Extra Dispensary Surgeons: Mr. Wm. C. Mackie, Mr. J. A. G. Burton, and Mr. P. H. Robertson. Consulting Surgeon for Diseases of the Eye: Dr. A. Maitland Ramsay. Consulting Medical Electrician: Dr. John Macintyre. Surgeon for Diseases of the Throat and Nose: Dr. John Macintyre. Gynæcologists: Dr. Balfour Marshall and Dr. J. M. Munro Kerr. Surgeon for Diseases of the Ear: Dr. J. Kerr Love. Physician for Diseases of the Skin: Dr. Alex. Morton. Pathologist: Dr. J. H. Teacher. Assistants in Pathological Institute: Dr. A. M. Kennedy, Dr. J. A. G. Burton, and Dr. J. M. Morgan. Bacteriologist: Dr. David McCrorie. Assistant Bacteriologist: Dr. J. A. Campbell. Medical Electrician: Mr. J. R. Riddell. Assistant Medical Electricians: Dr. Samuel Capie and Dr. Katharine M. Chapman. Anæsthetists: Dr. John Donald, Dr. H. P. Fairlie, Dr. F. L. Napier, Dr. A. S. Richmond, Dr. John S. McConville, Dr. Ellen Brown Orr, and Dr. Wm. Laird. Vaccinator: Dr. H. H. Borland. Dispensary Specialists:—Diseases of Women: Dr. James Taylor, Dr. A. L. McIlroy, Dr. James Hendry, and Dr. J. McIntyre; Diseases of the Ear: Dr. James Adam, Dr. R. S. McKim, and Dr. John W. Leitch; Diseases of the Skin: Dr. Alexander Morton and Dr. G. McIntyre; Diseases of the Throat and Nose: Dr. R. Fullerton and Dr. P. N. Grant; Diseases of the Teeth: Mr. W. Taylor and Mr. W. R. Taylor; Venereal Diseases: Dr. David Watson. Ophthalmic Department:—Surgeon: Dr. Maitland Ramsay; Assistant Surgeons: Dr. John Rowan, Dr. H. W. Thomson, Dr. John Gilchrist, Dr. John Wilson, and Dr. John Pearson; Extra Dispensary Surgeons: Dr. Walter H. Kiep and Dr. Andrew Ross Muir; Electrician: Dr. Gilchrist; Pathologist: Dr. John H. Teacher; Anæsthetist: Dr. R. H. Henderson; Superintendent: Dr. J. Maxtone Thom

GLASGOW WESTERN INFIRMARY.—This hospital adjoins the University of Glasgow. Number of beds upwards of 600. Special wards are set apart for Diseases of Women and for Affections of the Skin. In the out-patient department there are special cliniques for Diseases of Women and for Diseases of the Throat, Ear, Teeth, and Skin. The Clinical Courses are given by the physicians and surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend. Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class. All the courses of clinical instruction are recognised by the University of Glasgow and the [illegible] summer; these are likewise recognised by the University for graduation. Fifteen resident assistants are appointed annually, without salary, from those who have completed their course. The fee for hospital attendance is £10 10*s.* and the fees for clinical instruction are £3 3*s.* for the Winter Session and £2 2*s.* for the Summer Session.

A new Clinical Laboratory has just been opened, and students will receive laboratory instruction from the lecturer on clinical methods.

Staff.—Honorary Consulting Physician: Dr. G. P. Tennant. Honorary Consulting Gynæcologist: Dr. W. L. Reid. Visiting Physicians: Dr. Ralph Stockman, Dr. Wm. MacLennan, Dr. R. Barclay Ness, and Dr. J. W. Nicol (Skin Department). Honorary Consulting Surgeons: Sir Hector C. Cameron and Sir George T. Beatson. Visiting Surgeons: Sir W. Macewen, Dr. J. C. Renton, Dr. T. K. Dalziel, Dr. James H. Nicoll, Dr. Duncan Macartney, and Dr. G. H. Edington. Gynæcologist: Dr. Murdoch Cameron. Assistant Physicians: Dr. James Carslaw, Dr. John S. M'Kendrick, and Dr. Frank Charteris. Assistant Surgeons: Dr. Alfred A. Young, Dr. John Morton, Dr. Alex. MacLennan, Dr. Arch. Young, and Dr. M. Logan Taylor. Dispensary Physicians: Dr. A. B. Sloan, Dr. John Gracie, Dr. Leonard Findlay, Dr. John P. Duncan, Dr. Geo. Allison Allan, Dr. Jas. R. C. Greenlees, Dr. G. H. Clark, and Dr. D. R. Kilpatrick. Dispensary Surgeons: Dr. C. C. Cuthbert, Dr. W. W. Christie, Dr. Alex. H. Edwards, Dr. R. B. Carslaw, Dr. David Dickie, Dr. Wm. Rankin, and Dr. J. M. Renton. Anæsthetists: Dr. James P. Boyd, Dr. R. Home Henderson, Dr. John W. Renton, Dr. W. A. Sewell, and Dr. H. P. Fairlie. Dispensary Gynæcologists: Dr. S. Cameron and Dr Jas. H. Martin. Extra Dispensary Physicians: Dr. G. B. Fleming and Dr. Hugh Morton. Dispensary Physician for Diseases of the Skin: Dr. J. G. Tomkinson. Extra Dispensary Surgeons: Dr. Roy F. Young, Dr. W. A. Campbell, and Dr. W. A. Sewell. Dispensary Surgeon for Diseases of the Ear: Dr. Thomas Barr. Assistant Dispensary Surgeon for Diseases of the Ear: Dr. J. Stoddart Barr. Dispensary Surgeon for Diseases of the Throat and Nose: Dr. Walker Downie. Honorary Consulting Physician for Mental Disorders: Dr. L. R. Oswald. Consulting Medical Electrician: Dr. D. J. Mackintosh, M.V.O., LL.D. Medical Electricians: Dr. J. G. Tomkinson, Dr. Archd. Hay, and Dr. W. F. Somerville. Pathologist: Dr. Robert Muir. Clinical Pathologist: Dr. Carl H. Browning. Assistant Pathologists: Dr. J. S. Dunn and Dr. Geo. Haswell Wilson. Vaccinator: Dr. J. L. Carstairs. Dental Surgeon: Mr. W. D. Woodburn, L.D.S. Superintendent: Dr. Donald J. Mackintosh, M.V.O., LL.D. Matron: Miss H. Gregory Smith. Secretary and Treasurer: J. Matheson Johnston, C.A., 87, Union-street.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.—The Hospital at Garnethill was opened in December, 1882, and in June, 1903, a country branch consisting of two wards was opened at Drumchapel. The number of beds in the town hospital and country branch together is 100. A specially designed Dispensary, or Out-patient Department, was opened in October, 1888, in West Graham-street. In the hospital over 1000 patients, all under 12 years of age, are treated annually, and in the out-patient department over 12,000, involving nearly 50,000 attendances. A central site close to the University has been secured and a hospital of at least 200 beds to take the place of the one in Garnethill is in course of erection. The whole institution is for non-infectious cases and is available to medical students for clinical instruction in the diseases peculiar to childhood. Classes are formed both at Hospital and Dispensary at the beginning of the University session in October. Students may be enrolled at any time. Fee £1 1*s.* per annum, admitting to both Hospital and Dispensary. Further particulars on applying to the House Surgeon, 45, Scott-street, Garnethill, Glasgow. Physicians: Dr. R. Barclay Ness and Dr. J. B. Mackenzie Anderson. Surgeons: Mr. T Kennedy Dalziel and Mr. R. H. Parry.

GLASGOW OPHTHALMIC INSTITUTION, 126, West Regent-street (29 beds and six cots).—Clinical and systematic course of lectures for students during the winter and summer sessions. In-patients, 1045; out- or dispensary patients, 14,146. Operations on Wednesdays and Saturdays. Honorary Consulting Surgeon: Dr. D. N. Knox. Surgeon: Dr. A. Maitland Ramsay. Assistant Surgeons: Dr. John Rowan, Dr. H. Wright Thomson, Dr. John Gilchrist, Dr. John Pearson, and Dr. J. A. Wilson. Pathologist: Dr. J. H. Teacher. Electrician: Dr. John Gilchrist. Anæsthetist: Dr. R. H. Henderson. House Surgeon: Dr. Isabel Stark. This institution is the Ophthalmic Department of the Royal Infirmary. A post-graduate course is given by Dr. Ramsay and assistants during September. Clinical instruction is given in the summer session to students of the University and Queen Margaret College and in winter to students of St. Mungo's College and to all who take the class.

GLASGOW EYE INFIRMARY, Berkeley-street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824. The Infirmary now consists of two large buildings—that in Berkeley-street being occupied as the Infirmary proper, and that in Charlotte-street (new buildings opened June, 1894) as a dispensary. The Infirmary is devoted exclusively to the treatment of Diseases of the Eye, and is intended primarily to provide treatment, and, when necessary, board and lodging, for those who are unable to do so for themselves. The average number of new patients for the last ten years has been 24,496, and the total number of cases in 1912 was 30,132.

Students may attend on payment to the treasurer of the following fees:—For six months £1 1*s*. Fee for University qualifying course is £2 2*s*. All students when duly entered in the Infirmary Register may attend the clinical instruction of any or every member of the medical staff on production of their tickets. The days on which the surgeons respectively attend to receive patients may be ascertained at the Infirmary. Students have the privilege of being present in the Dispensaries at such hours as are arranged. They may enter the wards along with the surgeon whose clinique they are attending when he visits his patients. They may also be present at operations under the sanction of the surgeon operating, but no student may enter the wards or operating-room except under the aforesaid regulation. Students may be allowed the use of the journals and case-books for examination on applying to the House Surgeon. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. Secretary and Acting Treasurer: Harold John Black, 88, West Regent-street, Glasgow. The medical session opens in October. The Medical Staff is as follows:—Surgeons: Dr. A. Freeland Fergus, Dr. Andrew Wilson, Dr. James Hinshelwood, Dr. Leslie Buchanan, Dr. W. Ernest F. Thomson, and Dr. A. J. Ballantyne. Extra Surgeons: Dr. A. Lewis M'Millan, Dr. Henry L. G. Leask, Dr. W. Cochrane Murray, and Dr. Brownlow Riddell. Assistant Surgeons: Dr. W. B. Inglis Pollock and Dr. Samuel Capie. Pathologist: Dr. M. Logan Taylor. Honorary Consulting Medical Electrician: Dr. James R. Riddell. Honorary Anæsthetist: Dr. Fred L. Napier. House Surgeon: Dr. Stephen A. MacPhee. Assistant House Surgeon: Dr. A. C. Anderson. A Post-graduate Class will be held during September and October on Tuesdays and Fridays at 3 P.M., commencing Sept. 2nd. Subjects: Errors of Refraction; Use of the Ophthalmoscope; Operations. Fee 1 guinea.

UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE, ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

The following are extracts from the Regulations for Degrees in Medicine contained in Ordinance No. 5 of the University Court of the University of St. Andrews. These regulations came into force on August 2nd, 1910. Four degrees in Medicine and Surgery shall be conferred by the University of St. Andrews—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and a Diploma in Public Health. The whole curriculum may be taken at University College, Dundee, or the first two years of the course may be taken at St. Andrews and the remaining three years in Dundee. The degrees of M.B. and Ch.B. shall always be conjoined. Before commencing his medical studies each student shall pass a Preliminary Examination in (*a*) English, (*b*) Latin, (*c*) Elementary Mathematics, and (*d*) one of the following optional subjects:—(α) Greek, (β) French, (γ) German, (δ) Italian, (ε) any other approved Modern Language. A degree in Arts or in Science in any of the Universities of the United Kingdom and in some colonial or foreign universities shall exempt from the Preliminary Examination. The Preliminary Examination for graduation in Medicine and Surgery, Arts or Science, of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects). Also the Final Examination for a degree in Arts or Science and the Final Examination for the Diploma of L.L.A.

Degree of Bachelor of Medicine and Bachelor of Surgery.—Candidates must have been engaged in medical study for at least five years. In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below, each course extending over a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz.: Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, or Institutes of Medicine, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Infants, Pathology, Practical Chemistry, Physics (including the Dynamics of Solids, Liquids, and Gases, and the Rudiments of Sound, Heat, Light, and Electricity), Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine, and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery, Operative Surgery, Vaccination, Children's Diseases, Fevers, Ophthalmology, Diseases of the Ear, Throat, and Nose, Anæsthetics, and Post-mortem Examinations.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court.

Women shall be admitted to graduation in Medicine, subject to the provisions of Ordinance No. 18 [General No. 9]—Regulations for the Graduation of Women and for their Instruction in the Universities]: Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions herein laid down with respect to the Preliminary Examination, and shall be examined in all the subjects necessary for graduation by the Examiners of the University of St. Andrews. All the classes necessary for graduation shall be taken in the University of St. Andrews, except in so far as instruction obtained elsewhere is allowed by the said Ordinance.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate shall be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy and Physiology; third, in Materia Medica and Pathology and Forensic Medicine and Public Health; and fourth, in Surgery, Clinical and Operative Surgery, Practice of Medicine and Clinical Medicine, and Midwifery and Gynæcology (Systematic and Clinical).

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 15 guineas. The fee to be paid for the degree of Master of Surgery shall be 15 guineas.

The whole medical curriculum can be taken in University College or the first two years in United College.

Bursaries, United College, St. Andrews.—Fourteen Taylour Thomson Bursaries for female Medical students of the annual value of from £20 to £30 each, tenable for one or two years. The Bursaries are awarded in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Examination and who are prepared to take two Anni Medici at the United College, St. Andrews.

University College, Dundee.—(*a*) Open to either sex. Eleven Entrance Bursaries of £15, tenable for one year. (*b*) Open to either sex: Four £20 and three £15, second year. (*c*) Four £20 and two £15, third year. (*d*) Two £20, fourth year. (*e*) Two £20, fifth year. (*f*) Bute Bursary, founded in 1893 by the late Most Honourable the Marquis of Bute, K.T. This Bursary consists of the free proceeds [illegible]f £25, [illegible]undee, [illegible] D.Sc. [illegible] F.R.S.E. Chemistry: Hug [illegible] Natural History: D'Arcy [illegible] Botany: Patrick Geddes, F [illegible] Mackay, M.D., LL.D. Physiology: E. W. Reid, B.A., D.Sc., M.B., M.R.C.S., F.R.S. Pathology: L. R Sutherland, M.B., C.M. Surgery: D. MacEwan, M.D. Medicine: Alexander M. Stalker, M.A., M.D. Midwifery: J. A. C. Kynoch, M.B., F.R.C.P.&S.Edin. Materia Medica: C. R Marshall, M.A., M.D.

United College of St. Salvator and St. Leonard.—Professors—Natural Philosophy: A. S. Butler, M.A. Natural History: W. C. MacIntosh, M.D., LL.D., F.R.S *Chemistry:* James C. Irvine, D.Sc., Ph.D. Anatomy: James Musgrove, M.D., C.M. Physiology: Percy T. Herring, M.D.

For further particulars apply to Professor Kynoch, Dean of the Medical Faculty, University College, Dundee.

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. In the medical buildings there are spacious and well-equipped laboratories and work-rooms for Anatomy, Physiology, Materia Medica, Pathology, Ophthalmology, Public Health, Medicine, Surgery, and Gynæcology. The complete medical curriculum can be taken in Dundee. For classes, fees, &c., see under University of St. Andrews.

ROYAL INFIRMARY, Dundee.—The Infirmary contains 400 beds, including special wards for the Diseases of Women, Children, Eye, Ear and Throat, Skin, and for Obstetric cases. There is in addition an Extern Obstetric Department. There were during last year 16,602 out-patients and 5430 home patients. The Royal Infirmary offers exceptional facilities for practical work to students. Appointments: Six qualified *Resident Medical Officers are appointed every six months* and one non-resident Obstetric Assistant. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry. Further information can be obtained from Dr. Fraser, Medical Superintendent.

ROYAL and DISTRICT ASYLUMS, Dundee (five miles from City). Number of patients, 490.—Physician Superintendent: Dr. William Tuach-Mackenzie. Lectures on Mental Diseases and clinical instruction in connexion with University College, Dundee (University of St. Andrews), are given during the Summer Session at University College and at the Royal and District Asylums by Dr. Tuach-Mackenzie. The course consists of 12 Lectures and 14 Clinical Lectures and Demonstrations. There are two paid *qualified Resident Assistants and two unpaid* Resident Clinical Assistants.

UNIVERSITY OF ABERDEEN.

The University of Aberdeen grants four degrees in Medicine and Surgery—viz., Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine (M.B.), and Bachelor of Surgery (Ch.B.). The two degrees of M.B. and Ch.B. are not conferred separately and the higher degrees of M.D. and Ch.M. are only granted to holders of the M.B. and Ch.B. degrees.

Degrees of M.B. and Ch.B.—Before commencing his medical studies each student must pass a Preliminary Examination in (1) English, (2) Latin, (3) Mathematics, and (4) Greek, or French, or German. In the case of a candidate whose native language is not English an examination in the candidate's native language may be substituted for one in French or German, and an examination in any other classical language for one in Latin or Greek. The curriculum for the degrees extends over a period of five years, during which attendance is required in the following subjects: Botany, Zoology, Physics, Chemistry (Systematic [illegible] Practical), Medical J[illegible] gery, Medicine, and Midwifery.

Candidates must attend for at least three years the medical and surgical practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons, and they must have attended courses of at least nine months in clinical medicine and clinical surgery. The candidate must have acted as clerk in the medical and dresser in the surgical wards of a hospital and must have attended for at least six months the practice of a dispensary or the out-practice of a hospital, &c. Attendance is also required on courses in Mental Diseases, Fevers, Ophthalmology, Post-mortem Examinations, and other special subjects. The candidate is also required to have been properly instructed in Vaccination and to have attended at least 12 Midwifery cases.

Professional Examinations are held twice in each year—namely, in March and July, directly after the close of the winter and summer sessions.

The *fee for the degrees of M.B. and Ch.B. amounts to* £23 2*s*. Matriculation fee for the winter and summer sessions, £1 1*s*.; summer session alone, 10*s*. 6*d*.

Besides the Royal Infirmary, students have the opportunity of attending the following institutions: City Fever Hospital, Sick Children's Hospital, General Dispensary, and Lyin[illegible] Asylum, [illegible]

Degree[illegible] these degrees must already hold the degrees of M.B. and Ch.B. of Aberdeen. A thesis has to be presented for approval by the Medical Faculty and an examination has to be passed in Clinical Medicine or Clinical Surgery as the case may be. Fee for each of the degrees £10 10*s*.

A diploma in Public Health is granted by the University [illegible] University in the United [illegible] The diploma can be [illegible] Medical Council.

Application for further information should be addressed to the Secretary of the Medical Faculty.

Professors—Physics: C Niven, M.A., D.Sc., F.R.S. Physiology: J A. MacWilliam, M.D. Medicine: Ashley W. Mackintosh, M.D. Chemistry: F. R. Japp, LL.D., F.R.S. Anatomy: R. W. Reid, M D., F.R.C.S. Surgery: John Marnoch, M.B., C M. Materia Medica: J. T. Cash, M.D., LL D., F.R.S Midwifery: Robert G. McKerron, M.D. Forensic Medicine: Matthew Hay, M.D., LL.D. Botany: J. W. H. Trail, M D, F.R S. Pathology: Geo. Dean, M.B. Natural History: J. Arthur Thomson, M.A., LL.D.

Scholarships and Prizes.—In the Faculty of Medicine of the University c[illegible] Scholarships, a[illegible] (competition an[illegible] to £30 per annu[illegible] three years; ce[illegible] the Faculty of [illegible] Scholarships: [illegible] to £160 per a[illegible] and Prizes for proficiency in special departments, &c.

Clinical Instruction.—ABERDEEN ROYAL INFIRMARY.—Contains 250 beds. Physicians: Dr. George M. Edmond and Dr. Ashley W. Mackintosh. Assistant Physicians: Dr. A. H. Lister, Dr. W. R. Pirie, and Dr. Thos. Fraser. Consulting Surgeons: Professor Alexander Ogston, Dr. J. C. O. Will, and Dr. J. Mackenzie Booth. Surgeons: Mr. J. S. Riddell, Professor John Marnoch, and Mr. H. M. W. Gray. Assistant Surgeons: Dr. Wallace Milne, Dr. Fred. K. Smith, and Mr. George H. Colt. Ophthalmic Surgeon: Dr. C. H. Usher. Assistant Ophthalmic Surgeon: Dr. W. Clark Souter. Gynæcologist: Professor W. Stephenson. Pathologist: Professor George Dean. Assistant Pathologist: Dr. G. M. Duncan. Dental Surgeon: Dr. J. M. P. Crombie. Anæsthetist: Dr. A. W. Falconer. Assistant Anæsthetists: Dr. James Robertson and Dr. J. Johnston. Medical Electrician: Dr. J. R. Levack. Assistant Medical Electrician: *Dr. Frederick Philip.* Dermatologist and Lecturer on Diseases of the Skin: Dr. J. F. Christie. [illegible] Clinical Registrar: Dr. William [illegible] and Factor for the Hos[illegible] Finnie, 343, Union-street, Aberdeen.

ABERDEEN ROYAL LUNATIC ASYLUM.—Contains, with hospital attached to main institution and agricultural branch, about 986 beds. Medical Superintendent: Dr. William Reid. Assistant Physicians: Dr. Arthur Kellas, Dr. J. Scott Annandale, and Dr. Angus F. Legge. Clerk, Treasurer, and Factor: Mr. A. Scott Finnie, 343, Union-street, Aberdeen. Clinical instruction is given to students during three months in summer.

SCOTTISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow, or both, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery. Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries.

Professional Education.—I. The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of instruction: Physics, three months; Elementary Biology, three months; Chemistry, six months; Practical or Analytical Chemistry, three months; Anatomy, during at least six months; Practical Anatomy, twelve months; Physiology, six months; Materia Medica, three months; Pathology (including Practical Pathology), six months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery and the Diseases of Women and Children, three months; Medical Jurisprudence and Public Health, three months. The certified attendance on lectures, demonstrations, and practical work must not be less than three-fourths of the total number of roll-calls. II. The candidate must also produce the following certificates:—(*a*) Of having personally attended not less than six cases of labour, or alternatively attendance on 12 cases of labour, at least five of these to be conducted personally under the direct superintendence of the practitioner who signs the certificate, who must be a registered medical practitioner, but the practical midwifery applicable to students commencing medical study on and after Oct. 1st, 1908, is as follows: 1. Every student before commencing the study of Practical Midwifery shall have attended a course of lectures on Surgery and Midwifery and be required to have held the offices of Clinical Medical Clerk and Surgical Dresser. 2. Every student shall be required either—(1) to have attended the indoor practice of a lying-in hospital or the lying-in wards of a general hospital for a period of three months to the satisfaction of the medical officer in charge, and after having received therein practical instruction in the conduct of labour, under the personal supervision of a medical officer, to have conducted 12 cases of labour under official medical supervision; or (2) to have conducted not less than 12 cases of labour, subject to the following conditions—That he has during one month given regular daily attendance upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital or Poor-law infirmary recognised for that purpose by any of the licensing bodies, and that he has therein conducted cases of labour under the personal supervision of a medical officer of the hospital or infirmary, who shall, when satisfied of the student's competence, authorise him to conduct outdoor cases under official medical supervision. 3. No certificate that the student has conducted the above-mentioned 12 cases of labour shall be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital or of a dispensary having an obstetric staff recognised for that purpose by any of the licensing bodies or of a Poor-law infirmary having a resident medical officer so recognised. (*b*) Of having attended, for two and a half months, instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy. (*c*) Of having attended for 27 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons. Evidence must be produced that the candidate has acted as Surgical Dresser and Medical Clinical Clerk for not less than three months in the wards in each case, and has received practical instruction in administration of anæsthetics. (*d*) Of having attended for six months the practice of a public dispensary specially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital or of having acted for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities; this attendance should be made after the student has passed the First and Second examinations. (*e*) Of having been instructed in the Theory and Practice of Vaccination by a Public Vaccinator authorised by the Local Government Board to grant certificates of proficiency in vaccination and of having performed operations under the teacher's inspection during a period of not less than six weeks.

The above Course of Hospital Practice, and the above Courses of Clinical Medicine and Clinical Surgery shall be attended at a recognised Public General Hospital, possessing distinct staffs of Physicians and of Surgeons, and containing on an average not less than 80 patients available for Clinical Instruction.

In addition to the courses above prescribed, candidates are required to attend the following courses: Diseases and Injuries of the Eye, three months; Insanity, three months; Infectious Diseases, three months.

The curriculum lasts for five years; the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries. The period of three years devoted to hospital practice may include clinical instruction in special subjects, and must also include instruction in administration of anæsthetics and attendance at post-mortem examinations. The student's regularity of attendance in the wards and out-patients' departments of the hospitals and at the post-mortem examinations should be duly ascertained and noted on the certificate.

Students are recommended to pay particular attention to practical work in connexion with all the departments of study, and to avail themselves of opportunities of acquiring practical acquaintance with special departments of Clinical Study, such as Diseases of the Ear, Throat, and Skin, Diseases of Children, and Operative Surgery. The examinations shall be so conducted as to test practical knowledge.

Candidates shall be subjected to four professional examinations:

First Examination.—The First examination shall embrace the following subjects—(1) Physics, (2) Chemistry, including Practical Chemistry, and (3) Elementary Biology. The fees payable for admission to the First examination shall be for the whole examination, £5, for re-entry in all the subjects, £3, in one or two subjects, £2 10*s.*; for each subject separately, £2 10*s.*; and for re-entry, £2.

Second Examination.—The Second examination shall embrace Anatomy and Physiology including Histology; and candidates may be admitted to this examination at the end of the second year of medical study. The fees payable for admission to the Second examination shall be—for the whole examination, £5, and for re-entry after rejection, £3 for both subjects, and for each of the subjects separately, £3, and for re-entry for each subject after rejection, £2.

Third Examination.—The Third examination shall embrace Pathology and Materia Medica with Pharmacy. The fees payable for admission to the Third examination shall be—for the whole examination, £5; for re-entry in both subjects after rejection, £3; and for each of the subjects separately, £3, and for re-entry for each subject after rejection, £2.

Final Examination.—The Final examination shall not be taken earlier than the end of the fifth year of study and shall embrace the following subjects:—Medicine, including Therapeutics, Medical Anatomy, and Clinical

Medicine, Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye, Midwifery and Diseases of Women and of New-born Children, and Medical Jurisprudence and Public Health, but it is optional to candidates who have passed the Third Examination to be admitted to the subject of Medical Jurisprudence and Public Health on lodging certificates of having attended the necessary course in that subject at any time, but the subjects of Medicine, Surgery, and Midwifery shall be taken together at any time after the end of the fifth Winter Session, provided that a period of 24 months has elapsed since passing the Second Examination All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c The fees payable for the Final examination shall be,—for the whole examination, £15 for re entry after rejection, £5 and for the subjects of Medical Jurisprudence and Public Health when taken separately, £5, with £3 for re entry in that subject

Candidates who enter on the footing of having passed the earlier examination at another Board shall pay the fees in respect of these examinations, as well as the Final examination fees

There are six periods of examination annually, four in Edinburgh and two in Glasgow, and candidates may present themselves at either examining centre irrespectively of the place of the previous examination The Registrar in Edinburgh is Mr J Robertson, solicitor, 54 George square, and the Registrar in Glasgow, Mr A Duncan, LL D, 242 St Vincent street, to whom fees and certificates must be sent for the respective examinations

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

THE MEMBERSHIP AND FELLOWSHIP

In addition to the diplomas granted by the Scottish Conjoint Board the Royal College of Physicians grants its Single Licence to candidates already possessing legal qualifications for professional practice

The Royal College of Physicians of Edinburgh grants a *Membership* and a *Fellowship*

Membership —A candidate, who must be a Licentiate of a British or Irish College of Physicians, or a graduate of a British or Irish University and 24 years of age is examined in medicine, therapeutics, and in any branch of the departments of medicine specially professed, such as general pathology, psychology, public health, obstetrics, gynaecology, diseases of children tropical medicine, or medical jurisprudence The fee for the Membership is £36 15s, 15 guineas of which will be returned to any successful candidate who was already a Licentiate of the College at the time of qualifying for the Membership

Fellowship —The Fellows are selected, save with rare exceptions, from the ranks of the *Members* They must be 25 years of age The fee is £64 18s

The College grants its *Single Licence* on terms similar to those of the Royal College of Surgeons of Edinburgh, as mentioned in the next section

Further information can be obtained from the secretary

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

THE FELLOWSHIP

The Royal College of Surgeons of Edinburgh grants a diploma of Fellowship after examination to the holders of the surgical degrees of diplomas of such British examining bodies as well as of the holders of such surgical degrees of the Universities of Canada, Australia, New Zealand, and the Indian Empire as are recognised by the College The candidates for the examination must be 25 years of age and must have been engaged in practice for at least two years The examination is of a practical nature, partly written and partly *viva voce*, and must include surgery and surgical anatomy, operative surgery, and clinical practice One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine The fee to be paid on entering for examination for Fellowship is £45 £10 of which is remitted to those who already hold the Licentiateship of the College Candidates rejected at the examination obtain repayment of fee less £10 retained for examination expenses One month s notice of intention to present himself for examination must be given by the candidate to Mr D L Eadie, 54, George square, Edinburgh, clerk to the College, together with credentials signed by two Fellows of the College, one of whom must be a resident in Edinburgh, unless a special application be made to the President and the Council of the College

SINGLE LICENCE

The Royal College of Surgeons of Edinburgh admits to the examination for its Single Licence any candidate who already holds a Diploma in Medicine of any British, Indian, or Colonial university or of any British or Colonial College of Physicians, or of the Society of Apothecaries of London or Apothecaries Hall, Dublin, granted under the provisions of the Medical Act, 1886, whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above Female practitioners are now admitted to the Licence of the College but not to the Fellowship, and the regulations for the Licence apply to practitioners of either sex

Every candidate for a surgical diploma must have followed his course of study in a university, or in an established school of medicine or in a provincial school specially recognised by the College of Surgeons of that division of the United Kingdom in which it is situate

Under the title Established School of Medicine are comprehended the medical schools of those cities of Great Britain and Ireland in which Diplomas in Surgery are granted, and such colonial and foreign schools as are similarly circumstanced in the countries in which they exist

Professional Examination for the Single Diploma of the College —Candidates for the Diploma of the College will be subjected to one professional examination, partly in writing and partly practically and orally

Opportunities for the examinations will be presented four times in each year On each of these occasions the candidates will assemble to write answers to the questions proposed, and the clinical and oral examinations shall be conducted on the days immediately succeeding

Unsuccessful candidates will be remitted to their studies for a period to be determined by the judgment of the examiners, but not in any case for less than three months

The examination will embrace the principles and practice of surgery (including operative surgery and surgical pathology) clinical surgery, and surgical anatomy, and will not take place before the termination of the full period of study

Applications for examination must be made to Mr D L Eadie, not later than one week prior to the date of examination

On the production of the required documents Mr Eadie will give the candidate an order authorising the examiners to admit him to examination

The fee of £15 15s payable to the College must be lodged in the hands of Mr Eadie not later than one week preceding the examination day The sum of £10 10s will be returned to each unsuccessful candidate Under special circumstances candidates can be examined on days other than those fixed by the regulations The fee for a special examination is as follows viz, £20 for examination, of which £10 will be returned to candidates remitted on examination

In order to test more effectually the practical knowledge of candidates recent dissections and anatomical specimens will be employed during examination They will also be subjected to a practical clinical examination in the Surgical Hospital, including the application of surgical apparatus, bandages, surface markings &c, and may, if it be considered necessary to test their knowledge, be required to perform operations on the dead body

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Like the preceding corporations the Royal Faculty of [illegible] grants a Fellowship and [illegible] lifications [illegible] the Faculty is granted [illegible] rgery, together with an optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery, and 14 days' notice must be given by the candidate of his intention to present himself to Mr Alexander Duncan, LL.D., the Faculty Hall, Glasgow. The fee for the Fellowship is £30, £10 of which sum are returned to any successful candidate who already holds the Licence of the Faculty. An additional sum of £20 is required in the case of candidates resident within seven miles of Glasgow. In certain circumstances Fellows may be elected as a mark of distinction.

Licence.—The Licence of the Royal Faculty is granted as a separate qualification to qualified practitioners in Medicine after examination in surgery, including surgical anatomy and clinical surgery. The fee is 15 guineas.

SCOTTISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS.

The hospitals which are recognised by the Scottish Conjoint Boards, as places where professional study for their diplomas can be pursued are all those institutions which feed the medical faculties of the universities. In addition the Scottish Boards recognise all the places which are recognised by the English Conjoint Board (see p. 649) and the Irish Conjoint Board (see p. 673).

III.—IRELAND.

THE UNIVERSITIES.

UNIVERSITY OF DUBLIN (TRINITY COLLEGE).

Matriculation.—All students in the School of Physic intending to practise Physic must pass a matriculation examination. This may be either the Public Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary, or, for Extern Students, an examination recognised by the General Medical Council. No student can be admitted for the winter course after Nov. 25th.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be concurrent with the Medical course and the B.A. degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Systematic, Descriptive and Applied Anatomy, Chemistry and Practical Chemistry, Surgery and Operative Surgery, Histology, Botany, Zoology, Physics and Practical Physics, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Dublin Hospital (see p. 673) (two years at a recognised London or Edinburgh hospital before the commencement of the Dublin curriculum may be counted as one year spent in such Dublin hospital); (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 30 cases, six months; (6) Ophthalmic Surgery, three months. Three groups of examinations have to be passed. Preliminary Scientific Examination, including Physics and Chemistry, Botany, and Zoology. The Intermediate Medical, Part I., including Anatomy and Institutes of Medicine (Practical Histology and Physiology). The Intermediate Medical, Part II., including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica, Hygiene and Jurisprudence, and Pathology; and Part II., Medicine, including Clinical, Surgery, Midwifery, Gynæcology, Mental Diseases, Operations, and Clinical Ophthalmology. Part I. may be passed in the fourth year and Part II. in the fifth year. Fee for the *Liceat ad Examinandum*, £10. Fee for the degrees, £17.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also read a thesis before the Regius Professor of Physic. Total amount of fees for this degree, £13.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass an examination in the following subjects: 1. Clinical Surgery. 2. Operative Surgery. 3. Surgical Pathology. 4. Surgery. 5. Surgical Anatomy (on the dead subject), and one of the following optional subjects:—1. Surgery in one of the following branches—viz., Ophthalmic and Aural, Gynæcological and Dental. 2. Mental Disease. 3. Medical Jurisprudence and Hygiene. 4. Advanced Anatomy and Physiology. 5. Comparative Anatomy. Fee for the degree of Master in Surgery, £11.

Master in Obstetric Science.—A Master in Obstetric Science must be fully qualified and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery. He is then required to pass an examination in the following subjects:—1. Practice of Midwifery. 2. Gynæcology. 3. Anatomy of Female Pelvis and Elementary Embryology. 4. Clinical Gynæcology. Fee for the degree of Master in Obstetric Science, £5.

University Diplomas.—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine and must have completed two years in Arts and five years in Medical Studies. The Course and Examination necessary for the diplomas are the same as for the degrees. A diploma in Medicine, Surgery, and Midwifery is a registrable qualification conferred upon candidates who have completed a full five years' course in Medicine and two years in Arts. The diploma, like the degree, qualifies for registration. A diplomate, on completing his course in Arts and proceeding to the degree of B.A., may become a Bachelor by paying the degree fees. Fee for the *Liceat ad Examinandum*, £10. Fee for the diplomas in Medicine, Surgery, and Midwifery, £11.

Professors and Lecturers.—Natural Philosophy: M. W. J. Fry, M.A. Anatomy: A. F. Dixon, D.Sc., M.B. University Anatomist: Sir C. B. Ball, Bart., M.D., M.Ch. Physic (Regius): James Little, M.D. Surgery (Regius): Sir C. B. Ball, Bart., M.Ch. Surgery: E. H. Taylor, M.D. Botany: H. H. Dixon, D.Sc. Physics: W. E. Thrift, F.T.C.D. Pathology: A. C. O'Sullivan, M.D., F.T.C.D. Institutes of Medicine: W. H. Thompson, M.D., D.Sc. Medicine: James Craig, M.D. Materia Medica: W. G. Smith, M.D Midwifery: T. H. Wilson, F.R.C.P.I. Jurisprudence and Hygiene: H. T. Bewley, M.D. Chemistry: Sidney Young, D.Sc. Comparative Anatomy and Zoology: H. W. Mackintosh, M.A.

Clinical instruction.—The hospital facilities for clinical instruction available in Dublin will be described below.

THE NATIONAL UNIVERSITY OF IRELAND.

Matriculation.—All students intending to proceed to the medical degree of the University of Ireland must pass a matriculation examination, the next examination taking place in September in Dublin and at certain local centres. All students must pass in five subjects. All students must pass in the following subjects[1] except students not born in Ireland, and other students whose home residence shall have been outside Ireland during the three years immediately preceding their matriculation; but all such students will be expected to attend a course of instruction in Irish Literature and History prior to obtaining any degree in the University:—1. Irish. 2. Latin or Greek. 3. French, German, Italian, Spanish, Welsh, Dutch, or any other language approved by the Senate. 4. English. 5. Mathematics or Natural Philosophy.[2] 6. English, Latin, Greek, French, German, Welsh, Spanish, Italian, or any other modern language approved by the Senate, History and Geography, Mathematics, Natural Philosophy, or Physics[3] as an alternative, Chemistry, Botany, and for women candidates only, Physiology, and Hygiene. Candidates who under the regulations are exempted from the necessity of presenting Irish as one of their subjects may present as their fifth subject either a second language or a second science subject. Students entering for degrees in Medicine or Dentistry, if already registered by the General Medical Council, may be accepted as matriculated students of the Faculty of Medicine on passing the matriculation examination in any faculty of the University.

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[1] The Senate has directed that candidates who presented themselves for the Matriculation Examination and who passed in certain subjects in 1912 or any previous year, may, when presenting themselves in 1913, in the remaining subjects necessary to complete the examination, select such completing subjects in accordance with the regulations as to groups of subjects which were in force in 1912. Such candidates will not be obliged to present themselves for examination in *Irish*. Such candidates, however [illegible] subjects as [illegible] subjects on above, must present [illegible] the courses prescribe [illegible] sics at the

[2] Certificates of [illegible] be accepted Examinations of th [illegible] s' course in only if the Honours [illegible] the Honours these respective subjects has been passed. (A pass on the Honours Course will be accepted.) Students desiring to present *Pass Chemistry* or Pass Physics must pass an examination in these subjects at the Matriculation Examination of the University.

The following are the regulations for external students proceeding to medical degrees:—

Degrees of M.B., B.Ch., and B.A.O.—Printed forms of application for admission to any medical examination may be had from "The Registrar, The National University of Ireland, Dublin." Each candidate must send to the Registrar a printed form of application for admission, accurately filled up and signed by the candidate, together with the prescribed fee. 1. Students who pass the First Medical Examination in 1910, or have passed that examination in any year previously in the Royal University, may take *Practical Chemistry*, if the prescribed course of instruction has been pursued, at a special examination before or with the Second Examination in Medicine of the National University of Ireland, and on passing this special examination shall be regarded as having passed the First Examination in Medicine of the National University. 2. Students who, in October, 1910, had completed four years of study, may finish their studies under the Regulations prescribed by the Royal University.

Degrees of M.D., M.Ch., M.A.O.—Candidates may present themselves for the examination for any of these degrees after an interval of three academic years from the time of obtaining the M.B., B.Ch., B.A.O. degrees, but in the case of candidates who have obtained a degree in Arts or Science an interval of two years will be sufficient. All further information concerning fees, dates of examinations, production of certificates, and so on can be obtained from the Registrar of the University. The same formalities have to be complied with for proceeding to the degree of M.Ch. and M.A.O.

The Constituent Colleges of the National University of Ireland at which the full curriculum for medical degrees can be obtained are University College, Dublin; University College, Cork; and University College, Galway.

UNIVERSITY COLLEGE, DUBLIN.—The University and the College were created by the Irish University Act, 1908, and by Charters issued in December, 1908. Former students of the Cecilia-street School of Medicine who graduated in the Royal University may become graduate members of the new College. The constitution of the College, like that of the Constituent Colleges of Cork and Galway, provides for a governing body, an academic council consisting of professors and coöpted lecturers, a body of graduate members, and a body of student members matriculated in the University. The first professors and lecturers

stituent Colleges of the National University students do not live within the College, but the statutes make provision for the entrance of the students under officers of residence who have supervision of the lodgings of students approved by the College, and of the conduct of students outside the College. There are also approved places of residence in connexion with the College. The courses for Degrees in all Faculties are submitted to the University for consideration, and on approval become binding on the students of the College.
Matriculated students
attend before the P
Rules of the College,
societies have been
papers in connexion v
and Law, as well as societies of a more general character. The athletic clubs are well patronised, and the annual sports in May attract large fields of competitors. The great majority of the students are proceeding to the Degrees of the National University of Ireland. The work of the College is at present conducted in the former Royal University buildings in Earlsford Terrace, in the College, St. Stephen's Green, and in Cecilia-street. A competition for plans of new buildings, Mr. Henry T. Hare, F.R.I.B.A., of London, being assessor, resulted in the selection of the plan of Messrs. Doolin and Butler being adopted. The style of the proposed new buildings is of a type in keeping with the modified classic buildings for which Dublin is remarkable. When erected the buildings will undoubtedly form another impressive and splendid edifice worthy to rank with the well-known public buildings with which the Georgian period graced the city. The working drawings are almost completed, and arrangements for contracts will be made within the next few months. The buildings to be erected will provide accommodation of a very complete character for the work of the larger Faculties, including a new Medical School. The College library, begun in 1908, includes over 40,000 volumes. The College is connected indirectly through its staff with many of the hospitals of the city, and the students may take their courses of clinical instruction at any hospital recognised by the University.

Matriculation.—Almost all the students of the College are matriculated students of the National University of Ireland.

University Examinations in Medicine.—The First Examination includes Physics, Chemistry, Botany, and Zoology. The examination may be taken in two parts: Part I., Physics and Chemistry; Part II., Botany and Zoology. Honours may be obtained only when both parts are taken as one examination. The Second Examination includes Anatomy and Physiology. Both must be passed at the same time. The Third Examination includes Pathology, Medical Jurisprudence and Hygiene, and Materia Medica.

Degrees of M.B., B.Ch., and B.A.O.—The Examination in Medicine, Midwifery, Surgery, and Ophthalmology includes both the theoretical and the clinical branches. No student can enter for the M.B., B.Ch., or B.A.O. until the end of the fifth year when the curriculum has been completed. The course of study is as follows:—First year.—Winter: Anatomy and Practical Anatomy (required for the Second Examination),[4] Chemistry, Practical Chemistry, and Experimental Physics (with Laboratory Course). Summer: Zoology, Practical Zoology, Botany, and Practical Botany. Second year.—Winter: Anatomy, Practical Anatomy, Physiology, and Practical Physiology (physical and chemical). Summer: Anatomy, Practical Anatomy, Physiology, and Practical Histology. Third year.—Winter: Pathology, Surgery or Medicine; Hygiene, Medical Jurisprudence, and Practical Pharmacy. Summer: Materia Medica and Therapeutics, and Practical Pathology. Candidates are also required to attend a General Hospital for nine months (winter and summer). Fourth year, or fourth and fifth years.—Winter: Medicine or Surgery (the subject to be that not taken in the third year), and Midwifery and Gynæcology. Summer: Operative Surgery, Applied Anatomy, and Ophthalmology and Otology. Candidates are also required to attend a General Hospital for nine months (winter and summer), and to take instruction in Vaccination, and three months Fever Hospital. Fifth year.—If the Academic (Collegiate) Courses are taken as above, the Courses of the fifth year will be the following: Hospital Attendance, General Hospital, nine months; Clinical Ophthalmology and Otology, three months; Practical Midwifery and Gynæcology, six months; Mental Diseases, to be attended at a Lunatic Asylum, three months. (Note.—Practical Midwifery and Gynæcology may be taken in the fourth year after the Systematic Course of Midwifery, but it must not be taken concurrently with the period of attendance at Fever Hospital.) The degree of M.D. may be obtained either by examination or on published work.

The courses for the D.P.H. are on the ordinary lines, and the Bacteriological Laboratory is open for research throughout the session.

The following is the teaching staff of this school:—

Dean of the Faculty (of the College): Professor McLoughlin.

Professors.—Anator
M.B., B.Ch., B.A.O. I
B.A., M.D. Zoology

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[3] A candidate who takes Natural Philosophy in Group 5 cannot take Physics in Group 6.

[4] These courses are not required for the First Examination in Medicine, but must be taken in the first year to permit a candidate to qualify for admission to the Second Examination in Medicine at the end of the second year.

Hugh Ryan, M.A., D.Sc. Physics: John A. McClelland, M.A., D.Sc., F.R.S. Pathology and Bacteriology: Edmund J. McWeeney, M.A., M.D., D.P.H., F.R.C.P. Irel. Medicine: Sir Christopher J. Nixon, Bart., M.D., LL.D., F.R.C.P. Irel. Surgery: John S. McArdle, M.Ch., F.R.C.S. Irel. Midwifery and Gynæcology: Alfred J. Smith, M.B., F.R.C.S. Irel. Materia Medica and Therapeutics: Martin Dempsey, B.A., M.D., F.R.C.P. Irel. Hygiene and Medical Jurisprudence: J. N. Meenan, M.B., B.Ch., B A.O., D.P.H. Botany: J. Bayley Butler, M.A., M.B., B.Ch., B.A O.

Lecturers.—Ophthalmology: Louis Werner, M.B., F.R.C.S. Irel. Special Pathology: W. M. Crofton, B.A., M.B., B.Ch., B.A.O. Dental Surgery: E. Sheridan, F.R.C.S.Irel., L.D.S. Dental Mechanics: J. L. Potter, L.D.S.

Assistants and Demonstrators.—Anatomy: Dr. G. Keating, Mr. H. S. Meade, and Dr. H. Barniville. Chemistry: Mr. G. Ebrill and Mr. T. Dillon. Medicine: Dr. J. F. O'Carroll. Pathology and Bacteriology: Mr. T. T. O'Farrell and Dr. W. D. O'Kelly. Pharmacy: Mr. M. Hayes. Physics: Mr. J. Nolan and John J. Dowling, M.A. Surgery: Dr. A. Blayney. Physiology: Dr. S. A. McSwiney.

Session 1913–14, Michaelmas and Hilary Terms: The dissecting room opens on Oct. 1st. An introductory class for students beginning the study of medicine is held from Oct. 13th to Oct. 20th. Ordinary medical lectures begin on Oct. 20th. Term examination is held on Dec. 16th and subsequent days. Lectures are resumed on Jan. 12th, and the winter lectures terminate on March 23rd. Trinity Term: Lectures begin on April 15th and end on June 30th. All the University Examinations in Medicine are held in spring and autumn, a first examination being also held in June.

Scholarships.—Entrance Scholarship Examination: A general Entrance Scholarship Examination is held for all Faculties, the value of the scholarships tenable for one year in the Faculty of Medicine varying from £50 to £20. There are five Second-year Scholarships of £30 each, tenable for one year, offered in the subjects of the First Medical Year—viz., Physics, Chemistry, Botany, and Zoology. Candidates must have attended the courses of the First Medical Year in the College, and must have passed the First Medical Examination of the University in 1913. Five Third-year Scholarships of £30 each, tenable for one year. The scholarships of the third year are offered in the subjects of Anatomy and Physiology. Medical students who have pursued Honours Second-year Courses in subjects of the Faculty of Science in the College may, if they so desire, compete for the scholarships in such subjects, instead of presenting Anatomy and Physiology. Candidates must have been student-members of the College. Students who passed the Second Examination before the year 1913 are not eligible. Three Scholarships of £30 each, tenable for one year, awarded to students of the College, of not more than four years' standing in the Faculty of Medicine, who obtain distinction at the B.Sc. Hons. Examination of 1913. Students awarded those scholarships are not eligible for College Exhibitions at the B.Sc. Examination. Five Fourth-year Scholarships of £30 each, tenable for one year, offered in the subjects of *Pathology, Medical Jurisprudence, and Sanitary Science,* and one of the following: Materia Medica, Medicine, Midwifery, Surgery. All candidates must have been student-members of the College. Students who passed the Third Examination of the University prior to the year 1913 are not eligible to compete for the Scholarships of this class. Within these regulations students of the fifth year, as well as of the fourth, are eligible to be candidates for those scholarships. Three Fifth-year Scholarships of £30 each, tenable for one year, offered for competition in the subjects of Medicine, Surgery, and Midwifery. The subjects are not to include clinical (or practical) examination. Candidates for these scholarships must have passed the Third Medical Examination of the University, and must not have passed, or have been candidates for, the M.B., B.Ch., and B.A.O. degrees. They must have been students of the College. They must have attended in the College the courses of lectures in the subjects they select for the examination. There is also in the Faculty of Medicine one Post-graduate Scholarship of the value of £80, tenable for one year. Candidates must have passed the M.B., B.Ch., and B.A.O. examinations in 1913. The Post-graduate Scholar will be required to pursue a Post-graduate Course and to undertake research work in Anatomy, Physiology, or Pathology. Candidates for this scholarship must have pursued the whole Undergraduate Course for the M.B., B.Ch., and B A.O. degrees in the College. In the selection of the Scholar account will be taken of the distinction obtained by him in the Final Examinations for the M.B., B.Ch., and B.A.O. degrees, and in the previous examinations connected with the subjects in which he proposes to pursue post-graduate work. Exhibitions are offered to students of the College for distinction in the University Examinations in Medicine as follows: one of £20 and one of £10 each at each of the First, Second, Third, and Final Examinations. A gold medal is also offered to the student of the College of highest merit at the M.B , B.Ch., and B.A.O. Examinations of the year.

Fees.—The fees for Courses are similar to those of the other Dublin Medical Schools.

UNIVERSITY COLLEGE, CORK: THE SCHOOL OF MEDICINE.—The building is provided with a very large, well-ventilated dissecting room supplied with electric light, with physiological, toxicological, pathological, and pharmaceutical laboratories, materia medica, anatomical and pathological museums, as well as a collection of surgical and obstetrical instruments and appliances. There are well-appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden. The plant houses are well filled with plants and are open to the students in the class of Botany. The Library contains over 50,000 volumes and is open daily during term time to students. The Medical Museum occupies a large room erected at the northern end of the medical buildings. It consists of (1) an anatomical museum and bone-room, occupying the gallery; (2) pathological museum; and (3) materia medica museum. The two latter collections are on the ground floor. There is a large and representative collection of surgical instruments. The Students' Club is open to all men students of the College who pay the annual subscription of 2*s.* 6*d.* The club is a detached building containing reading, smoking, and refreshment rooms, kitchen, and lavatory. There is also a ladies' club, subscription 1*s.* The Mardyke grounds have been acquired by the College for football, athletics, &c., and there is also a practice ground within the walls of the College. There are also Gaelic football, Association football, cricket, hockey, hurling, lawn tennis, and athletic clubs, the last of these holding a public meeting once in each year in the Mardyke grounds.

Dean of the Faculty.—Professor A. E. Moore, M.B., B.Ch., B.A.O.

Professors.—Anatomy: D. P. Fitzgerald, M.B., B.Ch. Botany: H. A. Cummins, M.D., C.M.G. (Major, R.A.M C.). Chemistry: A. E. Dixon, M.D. Experimental Physics: W. Bergin, M.A. Materia Medica: John Dundon, M.B., B.Ch., B.A.O., F.R.C.S. Eng., F.R C.S. Irel. Medicine: W. Ashley Cummins, M.D., M.Ch. Obstetrics and Gynæcology: H. Corby, B.A., M.D., M.Ch. Pathology: A. E. Moore, M.B., B.Ch., B.A.O. Physiology: D. T. Barry, M.D., F.R.C.S. Surgery: C. Yelverton Pearson, M.D., M.Ch , F.R.C.S. Zoology: Marcus Hartog, M.A., D.Sc., F.L.S., F.R H.S. Hygiene: Mr. D. D. Donovan. Medical Jurisprudence: Dr. P. T. O'Sullivan. Ophthalmology: Dr. A. W. Sandford.

Lecturer.—Mental Diseases: Dr. J. J. Fitzgerald.

Demonstrators.—Anatomy: Dr. W. F. O'Connor. Chemistry: Mr. J. Taylor, M.Sc., and Dr. J. L. McKee, Ph.D. Experimental Physics: Mr. P. Belas, B.A. Midwifery: Dr. M. Cagney. Pathology: Dr. W. Magner. Physiology: Dr. R. H. Barter. Surgery: Dr. C. B. Pearson. Zoology: Miss B. E. Dude, B.Sc.

Terms.—The First Term will commence on Oct. 7th, 1913, and end on Dec. 19th. The Second Term will commence on Jan. 13th, 1914, and end on March 28th. The Third Term will commence on April 20th, 1914, and end with the session on June 30th. (*Note.*—The Easter Recess for the Medical Faculty includes the Friday and Saturday before Easter and Easter Monday.) Lectures will commence on Monday, Oct. 14th. Students who have been admitted as matriculated students are required to attend before the President and sign the Roll of Matriculated Students. Students who may be candidates for degrees in the National University of Ireland must have passed the Matriculation Examination of that University, and medical students must have passed a preliminary examination recognised by the General Medical Council. Candidates will be examined in Irish, Greek, or French or German, Latin, History, Geography, English, and Mathematics.

Admission of Medical Students —Students in the Faculty of Medicine who have passed the First Professional Examination of the Conjoint Examinations of the Royal College of Physicians and the Royal College of Surgeons in Ireland, or of the Royal College of Physicians and Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, or of the Royal College of Physicians, London, and Royal College of Surgeons, England, may be admitted to the rank of second year students on making application to the Council and submitting a certificate of having passed the examination Similarly, students who have passed the Second Professional Examination of the same Colleges may be admitted to the rank of third year students, and those who have passed the Third Professional Examination of the Dublin Colleges, or of the Edinburgh Colleges and Glasgow Faculties, may be admitted to the rank of fourth year students

Class Fees —Anatomy, £3, Physiology, £3, Practical Anatomy, £3, Practical Physiology, £3, Practical Pathology, £3, *Operative Surgery* £3, *Operative Surgery repeated*, £2, Practical Chemistry, £3, first year—Botany Lectures, £2, first year—Botany Lectures, practical work, £1, first year—Zoology Lectures, £2, first year—Zoology Lectures, practical work £1, first year—Physics Lectures, £2, first year—Physics Lectures, practical work, £1, all other subjects £2, re attendance, £1 Except for Operative Surgery the fees for practical classes are not reduced on re attendance Students who are signed up for all their Practical Anatomy can attend in the dissecting room (without subject) by paying £1 per term, this fee admitting to all demonstrations Students who have passed their Anatomical Examination can attend in the dissecting room (without subject) by paying £1 for the session or 10*s* for a term

Residence of Students —There is no accommodation for the residence of students within the College, but students not living at home, or with relatives or friends, sanctioned by their parents or guardians, are required to live in a hostel or in recognised lodgings, a list of which can be obtained from the Secretary All students are required to register their addresses each session in the book kept for that purpose in the hall porter's office, and to notify immediately to the Registrar any change of address during the session St Anthony's Hall, adjoining the College, is the property of, and is occupied by, the Franciscan Order A number of sets of rooms, together with recreation and common rooms, are provided for lay students who may desire to live there For full particulars apply to the Very Rev Superior, St Anthony's Hall, Fernhurst avenue The Ursuline Convent, Blackrock, has a house of residence, quite separate from their Secondary School, for Catholic women students Separate bedrooms, dining, and recreation rooms will be provided For terms and details apply to the Rev Mother Superior, Ursuline Convent, Blackrock, Cork Girls' Friendly Society Lodge, Dyke Parade, provides for other women students For terms apply to Miss Roy Women students coming from a distance and not living with friends or relatives are strongly urged to reside in a hostel

Scholarships —(*a*) Second Year —In this year three scholarships, each of the value of £30, will be awarded on the result of the first University Examination in Medicine held in Trinity Term, and taken as a whole (*b*) Third Year —Three scholarships, each of the value of £30, will be awarded on the result of the Second University Examination in Medicine, held in the Michaelmas Term, and taken as a whole (*c*) Fourth Year —Three scholarships, each of the value of £30, will be awarded on the result of the third University Examination in Medicine, held in Michaelmas Term, and taken as a whole (*d*) Fifth Year — The three scholarships obtained at the commencement of the fourth year by candidates may be continued for a fifth year should the conduct and progress of the holders have been satisfactory (as laid down in I (*d*)), but will be each of the value of £20 (*e*) Two exhibitions, each of the value of £15, will be awarded, one in Clinical Surgery and one in Clinical Medicine, to students of the fifth year, on the result of Examinations to be held in the Trinity Term, these clinical exhibitions can be held with fifth year scholarships

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College, Cork, for at least the three years previous to the examination, (2) that not more than three years have elapsed from the passing of his Second Medical Examination, and (3) that the whole examination is taken at one time

The Charles Gold Medal —In January, 1909, the governing body of University College, Cork, received from John James Charles, M D, F R S E, formerly Professor of Anatomy and Physiology in Queen's College, Cork, £125 Guaranteed Preference Stock of the London and North Western Railway Company, as well as a die, to provide a gold medal for competition amongst the students attending the courses of Anatomy or of Physiology in University College, Cork

Clinical Instruction —Students may attend the South Infirmary, Cork North Charitable Infirmary, the Mercy Hospital, the Cork District Lunatic Asylum, the Victoria Hospital for Diseases of Women and Children, the County Lying in Hospital, the Cork Maternity, the Cork Fever Hospital, the Cork District Hospital, and the Cork Ear, Eye, and Throat Hospital

* *South Infirmary and County of Cork General Hospital* (100 beds) —Staff Consulting Physician Dr P J Cremen Physicians Dr P T O Sullivan and Mr Norman I Townsend Surgeons Mr H R Townsend, Mr T Gelston Atkins, and Mr Henry Corby Ophthalmic Surgeon Mr A W Sandford Physicians for Extern Patients Mr E W Allsom and Dr E V Cantillon Surgeon for Extern Patients Mr R P Crosbie Pathologist Dr A E Moore Dentist Mr T. C Butterfield Honorary Secretary Mr N I Townsend Clinical instruction is given daily in the wards Special instruction on Ophthalmic Surgery and Diseases of Women and Children will be given in the special wards for such cases Fee for perpetual ticket, £18 18*s*, for 12 months, £8 8*s*, for six months £5 5*s*, for three months, £3 3*s* Two resident pupils will be appointed by competitive examination Clinical prizes will be given by the staff at the close of the session

* *Cork North Charitable Infirmary and County and City of Cork General Hospital* (100 beds) —Staff Honorary Consulting Surgeon Dr N J Hobart Physicians Mr D D Donovan and Dr Edward Magner Surgeons Mr Jeremiah Cotter, Mr C Y Pearson, Mr N H Hobart, and Mr D J O Mahony Assistant Physician Mr R B Dalton Assistant Surgeons Mr John Dundon and Mr Richard P Byrne Resident Surgeon Mr D F Hegarty Resident Physician Mr D M Donovan Pathologist (Vacant) Surgeon Dentist Mr William Pericho Dispensing Chemist Mr M Tucker Honorary Secretary Mr R B Dalton Clinical instruction is given daily in the wards by the physicians and surgeons Special instruction is given to Junior Students on two days weekly Fee for perpetual ticket, £18 18*s*, for 12 or nine months, £8 8*s*, for six months, £5 5*s*, and for three months, £3 3*s* Two resident pupils are appointed quarterly by the medical staff All resident pupils are required to be registered pupils of the Hospital There is a special department for treatment of the eye, ear, throat, and nose under the charge of Mr J Bowring Horgan

Mercy Hospital —Staff Consulting Physician Dr P J Cremen Consulting Surgeon Dr J Cotter Consulting Ophthalmic Surgeon Dr J J McMahon Physician Dr D J O Connor Surgeons Mr J Giusani and Mr J Dundon Ophthalmic Surgeon Mr J M Browne Surgeon Dentist Mr H O Keeffe Resident Surgeon Mr O Shea Anæsthetist and Radiographer Mr Walter Rahilly Pathologist Dr M A Shinkwin This hospital contains 85 beds for medical and surgical cases There is also a daily extern for medical and surgical cases, as well as for diseases of the eye, ear, and throat. Extern medical attendances 3402, surgical attendances, 778, ophthalmic attendances and dental, 5374, operations successfully performed, 1142, intern patients, 1059 Major operations 132, minor operations, 570 Honorary Secretary to the Staff Dr James Browne

Cork District Lunatic Asylum —Psychological Medicine A course of Clinical Lectures on Mental Disease and Allied Neuroses will be delivered in the *Cork District Lunatic* Asylum on Mondays and Thursdays, commencing the first Thursday in February, by the Resident Medical Superintendent All students wishing to enter for the course are expected to attend at the Asylum at 2 30 P M on that day. All information may be had at the Asylum from Dr. James J. FitzGerald, resident medical superintendent.

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* No returns

Victoria Hospital for Diseases of Women and Children (Cork).—Honorary Staff: Dr. Ashley Cummins, Dr. C. Yelverton Pearson, Dr. P. Lee, Dr. Hobart, and Dr. C. B. Pearson. Lady Superintendent: Mrs. George Armstrong. There are 75 beds. Clinical instruction on Diseases Peculiar to Children is given. The extern department is open daily at 9.30.

County and City of Cork Lying-in Hospital (Erinville, Western-road; founded 1798).—Staff: Honorary Consulting Physicians: Dr. W. E. Ashley Cummins, Dr. Cotter, and Dr. D. D. Donovan. Honorary Obstetric Surgeon: Mr. C. Yelverton Pearson. Physicians: Dr. N. H. Hobart, Dr. Lucy E. Smith, Dr. Daniel J. O'Connor, and Dr. P. J. O'Brien. Assistant Physicians: Dr. E. V. Cantillon and Dr. C. B. Pearson. This hospital contains 20 beds. Fee for six months' attendance, including clinical lectures, £3 3*s*. For further particulars apply to N. H. Hobart, honorary assistant secretary to staff.

Cork Maternity (Batchelor's Quay).—Staff: Honorary Consulting Surgeon: Dr. H. Macnaughton-Jones. Consulting Obstetric Physicians: Dr. T. Gelston Atkins and Dr. Henry Corby. Obstetric Physicians: Dr. John Booth, Dr. Richard Crosbie, and Dr. Michael Cagney. Three resident pupils are taken into the Maternity. Poor women are attended at their own homes. 522 were entered on the Maternity register last year. Clinical lectures are delivered during the session. There is an extern department for the treatment of women's and children's diseases. Fee for attendance at clinical lectures and certificate, £3 3*s*. For further particulars apply to Dr. Henry Corby, secretary to staff.

Cork Fever Hospital.—Staff: Ordinary Physicians: Dr. D. J. Flynn and Dr. T. Callaghan. Extraordinary Physician: Dr. D. Murphy. Resident Medical Officer and Registrar: Dr. A. G. Sutton. Upwards of 250 cases of various forms of fever and zymotic disease are treated yearly in this hospital. The Resident Medical Officer gives instruction in Practical Pharmacy, a certificate of which is necessary for the National University and Colleges of Physicians and Surgeons of Edinburgh.

Cork District Hospital (Douglas-road; 1200 beds).—Staff: Dr. W. E. Ashley Cummins (Professor of Medicine, University College, Cork, Examiner in Medicine, National University of Ireland), Dr. J. Giusani, Mr. D. Morrissy, and Mr. James T. O'Connor. Resident Medical Officers: Dr. Alice Barry and Dr. Michael C. Ahern. This hospital includes special buildings for fever and other infectious diseases (100 beds); for children's diseases (100 beds); and a Lock hospital, the only one in the South of Ireland (80 beds). It affords an extensive field for the study of all classes of diseases, acute and chronic, including special departments for gynæcology and diseases of the skin and nervous system. The physicians and surgeons visit the hospitals every morning at 10 o'clock. Lectures and clinical instruction are given daily in the wards by the physicians and surgeons. Further particulars may be obtained from Dr. W. E. Ashley Cummins, 17, St. Patrick's-place, honorary secretary, medical staff.

Cork Eye, Ear, and Throat Hospital (Western-road).—Staff: Visiting Surgeon: Dr. Arthur W. Sandford. Assistant Surgeon: Dr. T. H. D. Townsend. Consulting Physician: Dr. W. E. Ashley Cummins. Consulting Surgeon: Dr. H. N. Hobart. This hospital is open to students attending the University College and others. Certificates of attendance for three or six months can be obtained. The hospital contains 35 beds. Over 4000 cases are treated during the year. Clinical instruction is given to students attending the hospital, with demonstrations on the use of special instruments. A course of Lectures on Ophthalmic Surgery is delivered during the session. For further information apply to Dr. Arthur Sandford, 13, St. Patrick's-place, Cork.

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*UNIVERSITY COLLEGE, GALWAY: SCHOOL OF MEDICINE.—The College contains well-lighted and ventilated dissecting-room and anatomical lecture theatre; physiological, pathological, pharmaceutical, chemical, and physical laboratories; anatomical, pathological, gynæcological, and materia medica museums; as well as a large natural history and geological museum and an extensive library in which students can read and from which they can borrow books. New Chemical and Pathological Laboratories were last year in process of construction. The [illegible] value £30 and £25 each, for [illegible] with other Students on the Literary and Mathematical Entrance Course. In the Second, Third, and Fourth Years two Scholarships in each year, value £25 each, are reserved for Medical Students on the Professorial Course. In addition Sessional Class Prizes are awarded. The Scholarship Examinations are held at the beginning of each session. There are extensive grounds, a portion of which is occupied by a Botanic Garden and a portion is at the disposal of the College Athletic Union. There are several student societies in the College, including a Biological Society. There are abundant facilities for research and Post-graduate work in the Chemistry, Physiology, and Pathology departments.

Professors—Natural Philosophy: A. Anderson, M.A., LL.D. Chemistry: A. Senier, Ph.D. Natural History: R. J. Anderson, M.A., M.D. Anatomy and Physiology: J. P. Pye, M.D., D.Sc. Medicine: J. I. Lynham, M.D. Surgery: W. W. Brereton, L.R.C.S.I. Materia Medica: N. W. Colahan, M.D. Midwifery: R. J. Kinkead, M.D. Pathology: T. Walsh, B.A., M.D., D.P.H.

Clinical Instruction is given in the Galway Hospital and in the Galway Union and Fever Hospitals.

Galway County Hospital (60 beds).—Founded by Act of Parliament. Physicians: Professor R. J. Kinkead and Professor T. Walsh. Surgeons: Professor J. P. Pye, Professor N. W. Colahan, and Professor W. W. Brereton. Gynæcologist: Professor Kinkead.

**Galway Union and Fever Hospitals* (150 beds).—A prospectus giving details of the courses of study and examination for degrees and of the subjects for public and private foundation scholarships may be had on application to the Registrar.

QUEEN'S UNIVERSITY OF BELFAST.

There are six degrees in the Faculty of Medicine of the University—*viz.*, Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), and Master of Obstetrics (M.A.O.). The University also grants a Diploma in Public Health, particulars of which will be found in the University Calendar. The degrees of M.B., B.Ch., and B.A.O. are the primary degrees in the Faculty of Medicine, and are conferred at the same time and after the same course of study. No student is admitted to the final examination for these degrees until he has shown: (1) that he is a matriculated student of the University; (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a student of Medicine by the General Council of Medical Education and Registration of the United Kingdom; (3) that he has passed the several examinations prescribed; (4) that he has attended in the University during three academic years at least the courses of study prescribed for such degrees (the Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate); and (5) that he has attained the age of 21 years. Every candidate for admission as a matriculated student of the University shall pass such Matriculation Examination or fulfil such other test of fitness as may be prescribed by the Senate, which may prescribe the conditions under which students who have passed the Matriculation or Entrance Examination of any other University or College approved for that purpose (or who have fulfilled such other test of fitness as may be prescribed) may be exempted from passing the Matriculation Examination of the University.

The Matriculation Examination.—Entrants to the University who desire to proceed to a degree in the Faculty of Medicine shall be required to pass in five subjects, to be selected from (1) English; (2) Mathematics; (3) Latin; (4 and 5) any *two* of the following (of which *one* must be a Language)—(*a*) Greek, (*b*) French, (*c*) German, (*d*) Physics, (*e*) Chemistry, (*f*) Botany, (*g*) Modern History. There shall be two examinations for Matriculation, one in summer and one in autumn. A candidate will be obliged to pass in all the required subjects at not more than two examinations provided that the examinations are in the same year, or not more than two consecutive years. If a candidate fails to pass within the prescribed time all the subjects must be passed at the subsequent examination or examinations. Entrants (other than those who are matriculated students of the Royal University of Ireland) who have passed the Senior Grade of the Intermediate Education Board for Ireland in the subjects already prescribed in or after the year 1906 shall, on making formal application to the secretary, be admitted as matriculated students. Two examinations for Matriculation, each covering a period of six days, are held each year. The autumn examination will commence on Monday, Sept. 29th. Candidates must lodge their entrance forms, duly filled up, with the Secretary, and pay the prescribed fee of £1 1*s.*, not later than Sept. 1st, or with a late fee of 10*s.*, not later than 14 days before the examination, after which no entry will be received. Entrance forms may be had from the secretary.

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* No returns.

* No returns.

Entrance Scholarships.—Candidates who intend to present themselves for the Entrance Scholarships to be awarded after the October Matriculation Examination must give notice to the secretary of the subjects in which they propose to be examined not later than September. Information as to the scholarships which will be open for competition and the subjects which may be taken may be obtained from the secretary.

Primary Degrees of M.B., B.Ch., B.A.O.—All candidates for these degrees shall satisfy the examiners in the subjects of four examinations known as the First, Second, Third, and Fourth Medical Examinations respectively. Two examinations for each of these will be held in the spring and summer.

The First Medical Examination.—The subjects of this examination are Chemistry (Inorganic and Organic), Experimental and Practical Physics, Botany and Zoology, and Practical Botany and Zoology. The examination will be divided into two parts which may be taken separately: I., Chemistry, Practical Chemistry and Experimental Physics (including laboratory work); II., Botany and Zoology (including laboratory work).

The Second Medical Examination.—The subjects are Anatomy and Practical Anatomy, Physiology and Practical Physiology. Candidates who have previously passed the First Medical Examination may present themselves for this examination at the close of their second year.

The Third Medical Examination.—The subjects are: (1) Pathology and Practical Pathology; (2) Materia Medica, Pharmacology and Therapeutics; (3) Medical Jurisprudence; (4) Hygiene. Candidates who have previously passed the Second Medical Examination may present themselves for this examination at the close of the third year. Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination.

The Fourth Medical Examination.—The subjects are: (1) Medicine; (2) Surgery; (3) Midwifery; (4) Ophthalmology and Otology. This examination may be taken in two parts: I., Systematic; II., Clinical, Practical and Oral. Candidates who have previously passed the Third Examination may present themselves for Part I. of the Fourth Examination at the close of the fourth year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination. Candidates who have passed Part I. of this examination may present themselves for Part II. at the close of the fifth year, provided that they have fulfilled the necessary requirements as to hospital attendance on the various clinical courses in the subjects of examination. Parts I. and II. may be taken together at the close of the fifth year. Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.

Courses of Study.—Candidates who desire to enter for any of the Medical Examinations must furnish satisfactory certificates of attendance on the various courses dealing with the subjects of the respective examinations.

three months in the medical wards, of a hospital recognised by the
Universit (3) Of having
received ministration of
Anæsthet ident shall be
required oor practice of
a lying i hospital for a
period of erein practical
instruction in the conduct of labour, under the personal supervision of a medical officer, to have conducted 20 cases of labour under official medical supervision;
20 cases of labour, subject to
previously during one month g
indoor practice of a Lying in
general hospital or Poor-law
officer recognised for th
therein conducted cas
medical officer of the h
competence, authorise
medical supervision
above-mentioned 20 ca
by a member of the
charity of a general hospital, or of a dispensary having an obstetric

The following order of study and examinations is recommended:—

First Year

Winter Session.—Chemistry, Practical Chemistry, Experimental Physics (including Laboratory work), Anatomy (Elementary), and Practical Anatomy.

First Examination, Part I. (fee £1 1*s.*).

Summer Session.—Botany, Zoology, and Practical Botany and Zoology.

First Examination, Part II. (fee £1 1*s.*).

Second Year.

Winter Session.—Anatomy, Practical Anatomy, Physiology, and Practical Physiology (Physical and Chemical).

Summer Session.—Practical Anatomy (including Demonstrations), Physiology (continued), and Practical Histology.

Second Examination (fee £1 1*s.*).

Third Year.

n, Pharmacology, and

ical Pharmacy, Medical

1*s.*).

Fourth Year.

Winter Session.—Surgery, Medicine, Midwifery, and Hospital Practice.

Summer Session.—Operative Surgery, Ophthalmology, Vaccination,

Winter Session.—Clinical Medicine, Clinical Surgery, Clinical Gynæ-

Degrees of M.D., M.Ch., and M.A.O.—These degrees shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. These degrees may be conferred by the Senate either (*a*) after an examination, which includes written, oral, clinical, and practical examinations; or (*b*) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof. On application for these degrees a fee of £2 2*s.*, and on admission to them a fee of £8 8*s.*, must be paid.

The subjects of the examination for the degree of M.D. are:—The Principles and Practice of Medicine, and one other special subject to be selected by the candidate from: (i.) Human Anatomy, including Embryology; (ii.) Physiology; (iii.) Pathology; (iv.) Pharmacology and Therapeutics; (v.) Sanitary Science and Public Health; (vi.) Forensic Medicine and Toxicology.

The subjects of the examination for the degree of M.Ch. are:—(1) Surgery, Theoretical and Practical, including Ophthalmology and Otology. (2) Surgical Pathology. (3) Surgical Anatomy and Operative Surgery, with the use of surgical instruments and appliances.

The subjects of the examination for the degree of M.A.O. are:—(1) Midwifery. (2) Diseases of Women and Children. (3) Pathology in its special bearing on Midwifery, and Diseases of Women and Children.

Scholarships.—There are Twelve Entrance Scholarships of £40 in the Faculties of Arts, Science, and Medicine, tenable for one year, to be awarded to the candidates in the order of merit, provided that two shall be awarded to students entering the Faculty of Medicine if sufficient merit be shown. Four Scholarships of the value £40, £30, £20, £15, tenable for one year, will be open for competition in connexion with the Summer First Medical Examination. Four Scholarships of the value £40, £30, £20, and £15, tenable for one year, will be open in connexion with the Summer Second Medical Examination. Four Scholarships of the value £40, £30, £20, and £15 will be open in connexion with the Summer Third Medical Examination. Four Scholarships of the value £30, £30, £30, and £20, tenable for one year, will be open in connexion with the Summer Fourth Medical Examination. Grants from a Post-Graduate Research Fund may be obtained by graduates in medicine of not more than two years' standing.

The Medical School.—The Donald Currie Chemical Buildings contain a lecture theatre, a preparation room, a chemical museum, a large class-room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes, balance room, &c., provided with all modern appliances. Special facilities are given to those who wish to pursue original research. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The Medical Museum is in the same building. The Jaffé Laboratories for Physiology comprise a lecture theatre, laboratories for practical work in chemical physiology, histology, and experimental physiology, and in addition small private research rooms, including balance, galvanometer, and centrifuge rooms. The Musgrave Pathological Laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The Pharmaceutical Laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines. Lectures will commence on Oct. 15th, 1913.

The Teaching Staff of the Faculty of Medicine.—Professors—Physics: W. Blair Morton, M.A. Chemistry: E. A. Letts, Ph.D., D.Sc. Zoology: Gregg Wilson, M.A., D.Sc. Botany: D. T. Gwynne-Vaughan, M.A. Anatomy: J. Symington, M.D., F.R.S. Physiology (Dunville Professor): T. H. Milroy, M.D., B.Sc. Materia Medica: Sir William Whitla, M.A., M.D. Pathology (Musgrave Professor): W. St. Clair Symmers, M.B. Medicine: J. A. Lindsay, M.A., M.D., F.R.C.P. Lond. Surgery: T. Sinclair, M.D., M.Ch., F.R.C.S. Eng. Midwifery: Sir John Byers, M.A., M.D., M.Ch., M.A.O. Lecturers—Medical Jurisprudence: W. St. C. Symmers, M.B., and T. Houston, M.D. Ophthalmology and Otology: J. A. Craig, M.B., F.R.C.S. Eng. Hygiene: W. J. Wilson, M.D., D.P.H. Bio-Chemistry: J. A. Milroy, M.D. Physics: R. Jack, D.Sc. Organic Chemistry: A. W. Stewart, D.Sc. Vaccination: J. M'Liesh, M.B., D.P.H. Assistants and Demonstrators—Anatomy: H. P. Malcolm, M.B., and R. J. McConnell, M.B. Applied Anatomy: P. T. Crymble, M.B., F.R.C.S. Eng. Physiology: (Vacant). Practical Pharmacy: V. G. L. Fielden, M.B., Ph.C. Riddel Demonstrator in Pathology and Bacteriology: W. W. D. Thomson, M.B., D.P.H. Clinical Pathology: T. Houston, M.D. Medicine: G. G. Lyttle, M.B. Surgery: S. T. Irwin, M.B., F.R.C.S. Edin. Midwifery: T. S. S. Holmes, M.B. Internal Examiner in Sanitary Science: H. W. Bailie, L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. University Clinical Lecturers: Midwifery and Diseases of Children: J. McCaw, M.D. R.U.I. Medicine: William Calwell, M.D. R.U.I. Surgery: J. B. Moore, M.B., B.Ch. R.U.I. Ophthalmology: J. Walter Browne, M.D. R.U.I.

Clinical instruction.—The following institutions are recognised by the University as affording proper opportunities for clinical instruction: the Royal Victoria Hospital, the Mater Infirmorum Hospital, the Union Hospitals, the Belfast Hospital for Sick Children, the Belfast Maternity, the Ulster Hospital for Women and Children, the Ulster Eye, Ear, and Throat Hospital, the Belfast Ophthalmic Hospital, the Purdysburn Fever Hospital, and the Belfast District Lunatic Asylum.

The Royal Victoria Hospital (300 beds).—Physicians: Professor Sir William Whitla, Professor James A. Lindsay, Dr. William Calwell, and Dr. H. L. McKisack, Surgeons: Professor T. Sinclair, Mr. A. B. Mitchell, Mr. T. S. Kirk, and Mr. R. Campbell. Gynæcologist: Professor Sir John Byers. Surgeon for Diseases of the Eye, Ear, and Throat: Mr. James A. Craig. Pathologist: Professor W. St. C. Symmers. Physician for Diseases of the Skin: Dr. W. Calwell. Physician in charge of Out-patients: Dr. J. S. Morrow. Assistant Physician: Dr. J. E. McIlwaine. Surgeons in charge of Out-patients: Mr. Andrew Fullerton and Mr. Howard Stevenson. Gynæcologist in charge of Out-patients: Mr. R. J. Johnstone. Assistant Surgeon to the Eye, Ear, and Throat Department: Mr. Henry Hanna. Assistant to the Pathologist: Mr. G. G. Lyttle. Administrators of Anæsthetics: Dr. V. G. L. Fielden, Mr. W. J. Taggart, and Mr. N. Barnett. Medical Electrician: Dr. J. C. Rankin. Hæmatologist: Dr. Thomas Houston. Medical Registrars: Dr. Foster Coates and Dr. Rowland Hill. Surgical Registrars: Mr. P. T. Crymble and Mr. S. T. Irwin.

Mater Infirmorum Hospital (160 beds).—Consulting Physician: Sir Alexander Dempsey. Physicians: Mr. W. M'Lorinan, Dr. J. A. Black, and Dr. P. E. O'Flaherty. Surgeons: Sir Peter R. O'Connell, Mr. J. B. Moore, and Mr. John O'Doherty. Clinical Assistant in Surgery: Dr. D. McSparran. Clinical Assistant in Gynæcology: Dr. A. J. Dempsey. Anæsthetist: D. McSparran. Gynæcologist: Sir Alexander Dempsey. Ophthalmic Surgeon: Mr. H. Mulholland. Pathologist: Dr. W. St. Clair Symmers. Clinical Pathologist: Dr. W. W. D. Thompson. Registrar: Mr. O'Doherty. Dental Surgeon: Mr. Maurice Maguire. House Physician: Dr. Wilson. House Surgeon: Dr. M'Camb.

Union Infirmary and Hospital (1700 beds).—Visiting Medical Officers: Dr. Robert Hall, Dr. John M'Leish, Dr. Joseph Fulton, and Dr. A. Gardner Robb. Ophthalmic Surgeon: Mr. Henry Hanna. Dental Surgeon: Mr. W. Marshall Swan, L.D.S. Eng., and five Resident Medical Officers. The Abbey Sanatorium contains 250 beds. Visiting Medical Officers: Dr. Robert Hall, Dr. J. C. Rankin, and two Resident Medical Officers.

Hospital for Sick Children, Queen-street (52 beds).—Consulting Physicians: Dr. B. Smyth, Sir J. W. Byers, and Dr. F. H. Sinclair. Attending Physicians: Dr. J. McCaw and Dr. R. L. Leathem. Honorary Attending Assistant Physicians: Dr. M. B. Smyth and Mr. Rowland Hill. Consulting Surgeons: Sir J. Fagan and Mr. W. G. Mackenzie. Attending Surgeons: Mr. T. S. Kirk and Mr. R. Campbell. Honorary Attending Assistant Surgeons: Mr. A. Fullerton and Mr. P. T. Crymble. Ophthalmic Surgeon: Mr. W. K. McCready. Pathologist: Professor W. St. C. Symmers. Surgeon-Dentist: Mr. N. White. Anæsthetists: Dr. W. Burnside, Mr. H. N. Barnett, and Dr. J. Rusk. Honorary

Attending Physicians to Convalescent Home (Carrickfergus) Dr James A Clarke and Dr J Houston

Maternity Hospital, Townsend street (33 beds) —Honorary Consulting Physician Dr Brice Smyth Honorary Consulting Surgeon Mr J Campbell Honorary Visiting Physicians Dr H D Osborne Sir John Byers, Dr R J Johnstone and Dr Malcolm Brice Smyth

Ulster Hospital for Children and Women (47 beds) —Acting Staff Children's Department—Physicians Dr J D Williamson and Dr R W Leslie Surgeons Mr A B Mitchell and Mr Howard Stevenson Ophthalmic Surgeon Mr H H B Cunningham Assistant Physician Dr F C Smyth Assistant Surgeon Mr S T Irwin Women s Department—Dr Marion B Andrews and Dr C G Lowry Pathologist Dr T Houston Obstetric Physician Dr J D Williamson

Benn Ulster Eye Ear and Throat Hospital (30 beds) —Acting Surgeon Mr W M Killen Assistant Surgeon Mr H Hanna

Ophthalmic Hospital, Great Victoria street (30 beds) —Practical demonstrations by the staff and occasional clinical lectures in the subjects of Ophthalmology, Otology Laryngology, and Neurology Consulting Physician Sir W Whitla Surgeon Mr J W Browne Assistant Surgeons Mr H H B Cunningham and Mr Wiclif McCready Assistant Physician Dr Rowland Hill Clinical instruction is given daily Fee for three months £2 2*s*

City Fever Hospital Purdysburn (330 beds) —Physician in Charge Dr A Gardner Robb Clinical Classes are held during the winter and summer sessions

District Lunatic Asylum (1250 beds) —Resident Medical Superintendent W Graham, M D Assistant Medical Officers Dr J Patrick and Dr S J Graham Consulting and Visiting Physician R J Purdon, M D

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The College issues its Licences in Medicine and in Midwifery to practitioners whose names appear on the Medical Register of the United Kingdom

The Licence in Medicine —The subjects of examination are Practice of Medicine, Clinical Medicine Pathology, Medical Jurisprudence, Midwifery, Hygiene and Therapeutics

The Licence in Midwifery —Candidates must produce certificates of registration A registered medical practitioner of five years' standing may be exempted from the examination by printed questions

Fees —Fee for the Licence to practise Medicine £15 15*s* Fee for examination for the Licences in Medicine and Midwifery, if obtained within the interval of a month, £16 16*s* —to be lodged in one sum (*Any candidate who has been rejected at the examination for the Licence in Medicine loses this privilege and will be required to pay the full fee of five guineas for the Licence of Midwifery*) Fee for special examination for the Licence to practise Medicine, £21 Fee for examination for the Licence to practise Midwifery £5 5*s* Fee for special examination for the Licence to practise Midwifery, £10 10*s* The examinations for these Licences are held in the three days preceding the first Friday in February, May, and November

The Membership —Examinations for Membership are held in January, April, July, and October The fee for the examination is £21 to Licentiates of the College, or £36 15*s* to non Licentiates Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland Kildare street Dublin

The Fellowship —Fellows are elected by ballot Applicants must have been a Member of the College for at least one year and must have attained the age of 27 years There is a fee of £35 in addition to a stamp duty of £25

ROYAL COLLEGE OF SURGEONS IN IRELAND

The Licence in Surgery —A candidate whose name is entered either on the Medical Register for the United Kingdom the Colonial Medical Register, or the Foreign Medical Register of the year in which he presents himself for examination, and who satisfies the Council that he has passed through a course of study and Examinations equivalent to those required by the Regulations of the Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland, preceded by the passing of an Examination in Arts recognised by the General Medical Council, may at the discretion of the Council, be admitted to the Examination

Candidates are examined in Surgery, Clinical Surgery, Operative Surgery on the subject Surgical Appliances, and Ophthalmic Surgery The examination is partly written, partly *viva voce* and partly practical The fee is £26 5*s*, of which £5 5*s* is retained by the College in the case of unsuccessful candidates

Candidates are required to lodge their applications, declarations and certificates with the Registrar at least 21 days before the date of the Examination

Diploma in Midwifery —A diploma in Midwifery is granted after examination to persons possessing a registrable qualification Candidates must produce evidence of (*a*) attendance at a course of lectures on Midwifery and Diseases of Women and Children in some school recognised by the Council, (*b*) attendance on six months practice in connexion with a recognised lying in hospital or dispensary for lying in women and children, and (*c*) of having conducted at least 30 labour cases The fee for the examination is £15 15*s* of which £5 5*s* is retained by the College in case the candidate is unsuccessful

Fellowship Examinations —A candidate for the Fellowship shall make application to the President and Council to be admitted to examination All the required evidences of study or qualification fees and testimonials as to character must be submitted previously to the application being considered and the candidate shall then, if approved by the Council, be admitted to the next sessional examination In order that these regulations may be carried out candidates are required to lodge their applications complete with the Registrar at least seven days before the date of examination Sessional Fellowship Examinations commence as follows —The primary on the first Monday in March the second Monday in July and the third Monday in November, the Final on the second Monday in March, the third Monday in July and the fourth Monday in November Special examinations will not be granted by the Council under any circumstances

Candidates are required to pass two examinations—Primary and Final Candidates may present themselves for the Final Examination immediately after passing the Primary part provided they have complied with the necessary regulations The subjects for the Primary Examination are (*a*) Anatomy, including Dissections, and (*b*) Physiology and Histology

The subjects for the Final Examination are Surgery, including Surgical Anatomy, and Pathology The examination is partly written and partly *viva voce*, and includes the examination of patients, and the performance of operations on the dead body Candidates must pass in all subjects at one examination

The conditions of admission to the Primary Examination are that the candidate must produce evidence of having completed examinations in Anatomy, Physiology, and Histology under a licensing body whose degrees entitle the holder to have his name placed on the Medical Register For admission to the Final Examination the candidate must have passed the Primary Examination, and must be a Licentiate or Graduate in Surgery of a university or licensing body recognised by the General Medical Council, all such candidates must not be less than 25 years of age The fees for the examinations are as follows —Primary Examination, each admission, £5 5*s*, Final Examination, each admission £5 5*s* Of these examination fees £10 10*s* will be reckoned as part of the £42 fee payable upon admission to the Fellowship The fee to be paid is £42, except when the new Fellow is a Licentiate of the College in which case it is £26 5*s*

In cases of rejection the examination fees are retained by the College and are not allowed for in the fees for re examination

A rejected candidate will not be again admitted to examination until after a period of three months,

Further particulars can be obtained from the Registrar of the College, Stephen s green, West Dublin students. Practical demonstrations are given in Dentistry on Wednesdays in the new Special Dispensary. Opportunities are given the members of the hospital class of seeing the various applications of the X rays to the diagnosis and treatment of injury and disease. Opportunities are also afforded in the out-patient department for the diagnosis and treatment of the numerous minor ailments not met with in the hospital wards. A Resident Surgeon, with salary, is appointed annually. The election takes place at the end of December. Six Resident Pupils are appointed each half-year. Six Surgical Dressers and six Clinical Clerks are appointed each month.

Prizes and Medals.—Clinical medals and prizes amounting to about £15 each will be awarded in Medicine and in Surgery respectively in accordance with the will of the late Rev. Samuel Haughton, M.D., S.F.T.C.D. Candidates who fail to obtain these medals and prizes will be awarded special certificates in Medicine and in Surgery provided they show sufficient merit.

Fees.—Winter and summer session, £12 12*s.*; winter session (six months), £8 8*s.*; and summer session (three months), £5 5*s.* Special certificate in anæsthetics, £1 1*s.* The practice of this hospital is open to students of medicine in attendance on schools other than the School of Physic, the certificates being recognised by the Royal University and Royal Colleges of Surgeons of England, Ireland, and Scotland.

Consulting Physicians: Dr. J. M. Purser and Dr. J. Magee Finny. Physicians: Dr. W. G. Smith, Dr. H. C. Drury, Dr. James Craig, and Dr. T. Henry Wilson. Assistant Physician: Dr. E. J. Watson. Surgeons: Sir Charles B. Ball, Bart., Dr. E. H. Taylor, and Dr. C. A. K. Ball. Pathologist: Dr. A. C. O'Sullivan. Department for Throat, Nose, and Ear: Sir Robert H. Woods. Assistant Surgeon: Dr. C. M. Benson. X Ray Department: Dr. E. J. Watson. Anæsthetist: Dr. W. C. P. Smyly. Dentist: Mr. J. I. Kelly. House Surgeon: Dr. Walter Crane.

Further information will be supplied by the Hon. Secretary to the Medical Board, Dr. H. C. Drury.

JERVIS-STREET HOSPITAL, Dublin.—Founded 1718; *rebuilt* 1886. 130 beds. A new out-patient department has been completed and contains all modern requirements. Physicians: Dr. F. X. Callaghan and Dr. R. J. Rowlette. Surgeons: Mr. W. Stoker, Mr. L. A. Byrne, Mr. J. L. Keegan, and Mr. P. Hayden. Assistant Surgeon: Mr. T. W. Conway. X Rayist: Dr. H. W. Mason. Gynæcologist: Dr. McArdle. Ophthalmic Surgeon: Mr. P. Maxwell. Pathologist: Mr. E. J. McWeeney. Dentist: Mr. A. K. MacDonald. Anæsthetist: Mr. J. Daniel, L.R.C.S.I. Secretary: Mr. Kiernan O'Dea.

MATER MISERICORDIÆ HOSPITAL, Dublin.—Physicians: Sir Christopher Nixon, Bart., Sir Joseph Redmond, Dr. John Murphy, and Dr. Martin Dempsey. Surgeons: Sir Arthur Chance, Sir John Lentaigne, and Mr. Alexander Blayney. Assistant Physician: Dr. John O'Donnell. Assistant Surgeon: Mr. D. Farnan. Gynæcologist: Dr. Robert Farnan. Ophthalmic Surgeon: Mr. Louis Werner. Surgeon for Diseases of Throat and Nose: Mr. Patrick Dempsey. Dental Surgeon: Mr. E. Sheridan. Pathologist: Professor Edmond McWeeney. Assistant Pathologist: Dr. W. D. O'Kelly. X Rayist: Mr. Maurice Hayes. Anæsthetist and Surgical Registrar: Dr. Patrick O'Farrell. This hospital, the largest in Dublin, containing 345 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction will be given by the Physicians and Surgeons at 9 A.M. daily. A course of Clinical Instruction on Fever will be given during the winter and summer sessions. A certificate of attendance upon this course, to meet the requirements of the licensing bodies, may be obtained. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary. Surgical Operations will be performed daily. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents. Instruction will be given on Pathology and Bacteriology. Three House Physicians, six House Surgeons, and 20 resident pupils will be elected annually. Dressers and Clinical Clerks will also be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes will be offered for competition annually. For further particulars see prospectus. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. Private Wards have been opened for the reception of Medical and Surgical cases. A Training School and a Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance.—Nine months, £12 12*s.*; six winter months, £8 8*s.*; three summer months, £5 5*s.* Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr. Martin Dempsey, 35, Merrion-square. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes, &c., may be obtained from the Secretary, Medical Board.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—Physicians: Sir John William Moore, Dr. Edward E. Lennon, and Dr. William Boxwell. Surgeons: Sir L. H. Ormsby, Mr. William Taylor, Mr. R. Lane Joynt, Dr. Oliver St. J. Gogarty, and Mr. Henry Stokes. Gynæcologist: Dr. F. W. Kidd. Clinical Assistant: Dr. Mather Thomson. Pathologist: Professor Arthur H. White. House Surgeons: Dr. V. J. White and Dr. L. O'Donovan. This hospital was founded in 1753 and now contains 146 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the hospital. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Six Medical Clinical Clerks and 12 Surgical Resident Pupils and Dressers are appointed every six months, and House Surgeons and Clinical Assistants are elected annually. The session will open on Oct. 1st. A prospectus giving the complete arrangements for the Medical and Surgical classes for the coming session may be obtained from the Secretary of the Medical Board, Mr. Henry Stokes, 32, Upper Fitzwilliam-street, Dublin.

MERCER'S HOSPITAL.—This hospital, founded in 1734, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. There are a large out-patient department and a special department for diseases peculiar to women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

Fees.—Winter, six months, £8 8*s.*; Summer, three months, £5 5*s.*; nine months, £12 12*s.*

Consulting Physician: Dr. J. Magee Finny. Consulting Surgeon: Vacant. Consulting Gynæcologist: Dr. J. H. Glenn. Consulting Ophthalmic Surgeon: Mr. J. B. Story. Physicians: Dr. E. L'Estrange Ledwich and Dr. J. Lumsden. Surgeons: Mr. R. C. B. Maunsell, Mr. S. S. Pringle, and Mr. W. Ireland de C. Wheeler. Gynæcologist: Dr. A. N. Holmes. Radiologist: Dr. W. H. Mason. Pathologist: Vacant. Anæsthetist: Dr. C. F. Judd. Dental: J. Cockburn, L.D.S.

For further particulars apply to Mr. Seton Pringle, Hon. Sec., Medical Board, 27, Lower Baggot-street, Dublin.

NATIONAL MATERNITY HOSPITAL, Holles-street, Dublin.—Established 1894. Masters: Sir Andrew J. Horne and Dr. R. J. White. *Intern cases*, 1007; *extern cases*, 1260; dispensary cases, 4447. Comforthble quarters have been recently provided for students, and a large number of cases at the hospital give great opportunities for practical work. Arrangements are also made for post-graduate and special courses. Certificates of attendance at the hospital are recognised by all the licensing bodies. For further particulars apply to the Masters.

*Richmond, Whitworth, and Hardwicke Hospitals, North Brunswick-street, Dublin.—These hospitals contain 224 beds—87 for Surgical cases, 60 for Medical cases, and 77 for Fever and other Epidemic Diseases. A Resident Physician and a Resident Surgeon are appointed each half year and are paid for their services. 12 Resident Clinical Clerks are appointed each quarter and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students but also to those who are qualified in Medicine and Surgery. The Dressers are *selected from among the best qualified of the pupils without the payment of any additional fee. For prospectuses* apply to Dr. Travers Smith, Hon. Secretary, 20, Lower Fitzwilliam-street, Dublin.

Rotunda Hospital, Dublin.—This institution is the largest combined gynæcological and maternity hospital in the British Empire. Qualified men who take out a course of two months' duration are given one or more forceps applications, perineorrhaphies, &c., and a certain number of minor gynæcological operations. Students can enter at any time for the practice of the hospital and have access, not alone to the maternity and gynæcological wards, but also to the *pathological laboratory attached to the hospital.* The residential quarters have been rebuilt and refurnished within the last year with electric lighting, new baths, billiard table, new reading-room, new dining-room for lady students, &c., and afford most comfortable accommodation. Valuable appointments are periodically filled by qualified students who have obtained the hospital diploma. Women students can reside in the hospital on terms similar to those enjoyed by men. Master: Dr. Henry Jellett. Assistants: Dr. Allan and Dr. Madill. Pathologist: Dr. R. J. Rowlette. For further particulars apply to Dr. Henry *Jellett, Master.*

Royal City of *Dublin* Hospital.—*Founded 1832*; enlarged 1851; rebuilt 1893. 124 beds. Consulting Physician: Sir Hawtrey Benson. Physicians: Dr. A. R. Parsons and Dr. T. G. Moorhead. Surgeons: Mr. G. J. Johnston, Mr. H. Moore, and Mr. R. A. Stoney. Ophthalmic and Aural Surgeon: Mr. Frank C. Crawley. Gynæcologist: Mr. G. Fitzgibbon. Anæsthetist: Mr. G. P. Meldon. Dental Surgeon: Mr. D. L. Rogers. Secretary: Mr. Edw. B. Armstrong.

Royal Victoria Eye and Ear Hospital, Dublin.—Established 1844. Incorporated 1897. 82 beds. Consulting Physicians: Dr. J. Little and Dr. R. A. Hayes. Consulting Dental Surgeon: Mr. A. W. W. Baker. Surgeons: Mr. J. B. Story, *Mr. Patrick W. Maxwell, and Mr. Louis* Werner. Assistant Surgeons: Mr. H. C. Mooney, Mr. F. C. Crawley, Mr. J. O. Cummins, Mr. R. H. Mathews, and Miss E. Maxwell. Clinical Assistant: Miss K. F. Lynn. Surgeon to Dispensary for Throat: Dr. T. O. Graham. Surgical Radiographer: Mr. W. S. Haughton. Registrar: Mr. G. A. Howell. In-patients, 1518; out-patients, 10,614. Two house surgeons appointed annually.

Dr. Steevens' Hospital, Dublin.—Established 1720. 200 beds. Consulting Physicians: Dr. *J. Little*, Dr. J. M. Purser, and Dr. H. C. Tweedy. Consulting Surgeon: Sir C. B. Ball. Physicians: Dr. R. A. Hayes, Dr. T. P. C. Kirkpatrick, and Dr. W. A. Winter. Assistant Physician: Dr. J. J. Purser. Surgeons: Mr. R. B. McCausland, Mr. R. L. Swan, Mr. W. S. Haughton, and Mr. W. C. Stevenson. Assistant Surgeon: Dr. W. A. Cooke. Anæsthetist: Dr. F. O'Brien Kennedy. Obstetric Physician and Gynæcologist: Dr. E. H. Tweedy. Ophthalmic and Aural Surgeon: Dr. R. H. Mathews. Pathologist: Dr. W. M. Crofton. Dental Surgeon: Mr. G. M. P. Murray. Resident Surgeon: Dr. H. C. Smyth. Secretary: Mr. G. E. Pepper. Patients, 1473.

*St. Vincent's Hospital and Dispensary, Dublin.—Established 1834. 160 beds. Physicians and Lecturers on Medicine: Dr. M. F. Cox, Dr. M. McHugh, and Dr. W. J. Dargan. Physician for Extern Department: Dr. J. Meenan. Surgeons and Lecturers on Surgery: Mr. J. S. McArdle, Mr. R. F. Tobin, and Mr. D. J. Kennedy. Surgeon to Extern Department: Mr. H. Meade. Gynæcologist and Lecturer on Gynæcology: Mr. A. J. Smith. Pathologist and Lecturer on Pathology: Dr. T. T. O'Farrell. Surgeon-Dentist and Lecturer on Dentistry: Mr. J. J. Murphy. Pharmacist and Lecturer on Pharmacy: R. Shaw.

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* No returns.

UNIVERSITY OF BRUSSELS.

British and other practitioners holding registrable qualifications are admitted to the examination for the Doctorate of the University of Brussels without further curriculum. It is essentially a practitioner's examination and is separate from that intended for the Belgian students who take up the medical curriculum of the University. The fees are—For matriculation, £8 12*s.*; for 1st Part, £4 4*s.*; for 2nd Part, £4 8*s.*; for 3rd Part, £4 8*s.*; for legalisation of diploma, 8*s.*—total, £22. Candidates who have paid in advance the fees for the three examinations, and are unsuccessful in the first, recover the fees paid for the second and third; those who fail in the second recover the fees paid for the third examination. Unsuccessful candidates are allowed to come up again three months after rejection on payment of examination fees only, provided this second appearance be in the course of the same academical year (Oct. 1st to June 30th), otherwise they must renew the payment of the matriculation fee of £8 12*s.* The examination consists of three parts, viz.—1st Part: General Medicine; Materia Medica and Pharmacology; General Surgery; and Theory of Midwifery. 2nd Part: General Therapeutics; Pathology and Morbid Anatomy, with use of the microscope; *Special Therapeutics and Medicine of* Internal Diseases, including Mental Diseases; and Special Surgery. 3rd Part: Public and Private Hygiene; Medical Jurisprudence; Clinical Medicine; Clinical Surgery; examination in Operative Surgery, consisting of some of the usual operations on the dead subject—viz., Amputation, Ligature of an Artery, &c.; Ophthalmology; examination in Midwifery, consisting in obstetrical operation on the mannikin (model of pelvis); and examination in Regional Anatomy with Dissection. The time required for the three examinations seldom exceeds ten days, and is usually less. *Candidates have the option of passing each part separately, or of taking* the three together, and the latter is the usual course; also of demanding a written examination on payment of an additional fee of one guinea for each part, a rule of which candidates rarely or never avail themselves. The examinations, which are *vivâ voce*, begin on the first Tuesday in November, December, March, May, and the second Tuesday in June (middle June). Candidates should appear with their medical registration certificate or their diplomas at the Secretary's office not later than 2 P.M. on the day preceding the examination. Most of the examiners speak English, and those who do not examine through the medium of an interpreter. Great importance is attached to practical knowledge, but candidates must also possess sound theoretical knowledge, the standard required varying with the subject. Pathological and other specimens are not usually shown. There are in England and the Colonies at present over 600 graduates holding this degree, and a British Association of Brussels Medical Graduates has been in existence for many years. Applications should be made to the Secretary, 14, Rue des Sols, Brussels; or to Dr. Arthur Haydon, Secretary of the Brussels Medical Graduates' Association, 23, Henrietta-street, Cavendish-square, London, W.

THE NAVAL, MILITARY, AND INDIAN MEDICAL SERVICES.

The conditions of service in the medical departments of the Royal Navy, Army, and Indian Army, remain, with certain modifications, the same as for 1912.

With regard to the Navy an Order in Council was issued on August 8th, 1911, based, it is understood, on the report of Sir John Durnford's Committee, appointed four years ago. This Order, we fear, was a disappointment to all but the senior officers of the Service. The old ranks of inspector and deputy inspector-general *became surgeon* and *deputy surgeon-general*, as they used to be in the army. Pay was increased by 1*s.* or 2*s.* daily every year or two till 26 years' service, when it is £1 15*s.* a day, and for fleet surgeons does not rise any higher. Deputy Surgeons-General now get £2 5*s.* daily. Senior medical officers of battleships and cruisers with complements of 650 and upwards get 3*s.* 6*d.* daily charge pay, *which is very right* and has often been asked for. Charge pay is now given more freely. The surgeon who passes the staff surgeon's examination at his first attempt may secure 18 months' earlier promotion by getting a special certificate (or 12 months' if he only attains a first class), provided the Admiralty thinks him deserving and the director-general does not reduce the period. A surgeon who has passed this examination before eight years may, as at present, retire with a gratuity of £1000 if he so choose; but if he has not passed at eight years he will be compulsorily retired on any gratuity the Admiralty thinks right, not exceeding £500.

We would strongly urge on the authorities the advisability of removing the still existing legitimate grievances; the reforms could for the most part be effected at the expense of little but tact and a consideration of what is justly due to the naval medical officers. Every naval medical officer who has written to our columns, and this is not a small number, has expressed dissatisfaction with the position in which the cabin question has been left by recent regulations. Allotment to the medical officer of cabin accommodation inferior to that to which he is entitled still takes place, and cannot, at any rate cannot always, be explained by the cramped space on a modern man-of-war. Another innovation sadly wanted is a regulation to ensure that the senior medical officers in hospitals should have proper disciplinary power over their subordinates and patients. Other points, such as the supply and use of boats, for example, might well be settled in accordance with the just desires of the Naval Medical Service, for the Admiralty will be prudent to aim at making the Service more popular. And the same may be said of all three services. For that there is now no competition for commissions in the Naval Medical Service and no keen competition for those in the Army Medical Corps or the Indian Medical Service seems undeniable, and this is the more unfortunate since fewer men are now entering the medical profession as a whole. It is no longer easy for all hospitals to obtain suitable residents, while assistants are scarce and even junior partners are not to be found directly they are wanted. The Services will therefore have to be careful to increase their popularity, and the point is that it may be economical for them to do so now. By small concessions they may avoid having later to pay a heavy price to attract men. We would also suggest that it is unwise to let any of these departments run below the normal strength if it is possible to maintain them at par.

Though some further reform may be wanted in the Naval Medical Service, its present state is not without material advantages. At one time not so very long ago the Naval Medical Service was not looked upon as one in which an educated gentleman could serve with dignity, while complaints were heard of many of the conditions of service. But the old order of things is giving place to the new, and a comparison of the lot of the naval medical officer with that of the civil practitioner will show that the trials of the civil branch of the profession are greater than those of the naval branch, and probably when all things are considered the naval surgeon is in a far better position than the average lay professional man. In the junior ranks of the Service the pay is better than the average income of the lay medical man of the same age, and promotion is not always slow. With £20 a month the young naval surgeon can, if he is not extravagant, get along very comfortably, though he will require at the commencement of his career £50 or £60 for outfit. A private income is certainly not necessary. After 20 years of service a naval surgeon is entitled to a pension of £365 a year, which compares very favourably with the prospects of many medical men on the civil side of the profession, and in case of illness there is the half-pay rate, while pensions are provided for widows and children. In this way the young naval officer is relieved of the most serious anxiety which can press upon a married man, but he ought not to marry young without due consideration, a warning which, however, applies to most medical men. With regard to the Medical Services of the Army and Indian Army, a comparison with that of the Navy shows that though the Army and Indian Service are better paid, promotion in the case of the army has been rendered less certain; in both services expenses are higher and the work more fatiguing, while in the Indian Service there is a greater liability to disease and death. The young surgeon, too, on board his vessel probably gets a better chance in the Navy than in the Army. So long as the new surgeon is adequately good at his profession, is kind and unselfish towards his patients, is not too self-assertive, and has any positive accomplishments or skill at any sport or game, he should get on very well, especially if he is good-humoured and helpful. And if a man has not these qualities where should he be advised to practise?

The conditions of entry into the Royal Naval Medical Service were altered in 1910. Formerly, candidates on passing the examination in London at once received their commissions as surgeons in the Royal Navy. They are now appointed acting surgeons. Moreover, after courses of instruction, they will be again examined, and if they pass this examination also will be duly commissioned. Their seniority—that is, their place on the list throughout their service—will depend on the marks they get in both examinations. The standard of marking is not disclosed, and proficiency in the second examination in subjects which have been studied only through perhaps three or six months may avail as much in fixing their places as success in the first examination, which is the outcome of the industry and training of at least five years. This point should be cleared up by the Admiralty, as the uncertainty operates to discourage application from the best candidates, the most highly educated, those most desired by the service, who will be rather shy to trust their hard-won pre-eminence to so doubtful a fortune. An extra 10 per cent. for the second examination would give plenty of inducement to the acting surgeons to be attentive to the important instruction in tropical diseases and naval hygiene they receive at Greenwich and Haslar. The relative proportions should be mentioned if the best candidates are not to be frightened away. The entrance examination was also altered. Voluntary subjects and hygiene were done away with. The examination deals with medicine and surgery only. In each subject there is a written, a clinical, and an oral examination, and 400 marks are given for each of the six examinations. This scheme gives a material advantage in the competition to less broadly educated candidates. Confidential reports as to the character of a candidate are now to be obtained from the dean of his medical school. Certain additional marks are given to candidates who possess certificates from the Officers' Training Corps. Nominated candidates, except those nominated by colonial universities, are no longer allowed.

ROYAL NAVAL MEDICAL SERVICE.

REGULATIONS FOR THE ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.[1]

Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. *He must produce* an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth.

He must declare (1) his age and date and place of birth; (2) that he is of pure European descent[2] and the son either of natural-born British subjects or of parents naturalised in the *United Kingdom*; (3) that he labours under no mental or constitutional disease or weakness, nor any other imperfection or disability which may *interfere* with the most efficient discharge of the duties of a *medical officer* in any climate; (4) that he is ready to engage for general service at home or abroad, as required; (5) whether he holds, or has held, any commission or appointment in the public services; (6) that he is registered under the Medical Act, giving the date of his registration as a medical student, or of his beginning professional study; and (7) whether he has previously been examined for entry in the Naval Service, and, if so, when.

The certificates of registration and birth must *accompany* the declaration, which is to be filled up and returned as soon as possible, addressed to the Director General, Medical Department, Admiralty, London, S.W., to permit of reference to the candidate's medical school. The Dean or other responsible authority of such school will be requested by the Medical Director-General to render a confidential report as to the candidate's character, conduct, professional ability, and fitness to hold a commission in the Royal Navy. The candidate will then be interviewed by the Medical Director-General, and his physical fitness will be determined by a board of Naval Medical Officers. The Medical Director-General will then decide whether he may be allowed to compete. If accepted, the candidate will be eligible to present himself at the entrance examination, which will be held twice a year. Notification of the exact date of this, as well as the number of commissions to be competed for, will be advertised in THE LANCET. Candidates will be examined in the following subjects: (*a*) Medicine, including Medical

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[1] To be obtained, toge [illegible] an application to the Medical Director- [illegible] of clear

[2] If any doubt shoul [illegible] proof that he qualified will rest upon the candidate.

Pathology and Therapeutics; and (*b*) Surgery, including Surgical Pathology and Clinical Surgery. The examination will be partly written and partly practical, marks being allotted under the following scheme:—

Medicine.		*Surgery.*	
Paper	400	Paper	400
Clinical	400	Clinical	400
Oral	400	Oral	400
Total	1200	Total	1200

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General.

College, Greenwich. Two
Bacteriology and Clinical
The latter is in charge of
going courses at this sch
duration, two of which are passed at Green-
Medicine, Bacteriology and Clinical
the remaining four at Haslar in the
ting, Physical Training, Diving, Sub-
Anæsthetics, Dentistry, &c. A Fleet
Surgeon, superintends these studies at Haslar and fills the post of Lecturer on Naval Hygiene. At the conclusion of the six months' course an examination is carried out as above mentioned.

the Rank of

fficers consists of
romotion to Staff

Surgeon; (2) a second course of three months for officers of not less

courses take place twice a year. There are six compulsory subjects: Clinical Medicine and Surgery, Operative Surgery, Practical Anæsthetics, Ophthalmology, Clinical Pathology, and Hygiene; and two optional subjects. Diseases of the Throat, Nose, and Ear, and Ski graphy.
will be allowed a
second trial;
pulsorily retired on
attaining eig
ity (not exceeding
£500) as the
Instructio
, and skiagraphy
will be giv
the other subjects
will be stud
l and other civil
hospitals in
Medical Director-
General. Th
se will be accom-
modated at
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supervised by the
Professor of Hygiene.

forwarded to the Admiralty at the close of each course.

Promotion to Staff Surgeon.

one a year. The total number at any one time of Staff Surgeons holding that rank by such special promotions will not exceed eight.

successful trial will not count towards accelerated promotion.

Promotion to Fleet Surgeon.

(*a*) Subject to the approval of the Lords Commissioners of the Admiralty rank as Fleet Surgeon will be granted to Staff Surgeons at the expiration of eight years from the date of promotion to Staff Surgeon, provided they are recommended by the Medical Director-General, have served in that rank at sea for three years, and have not declined service except for reasons which in the opinion of the Lords Commissioners of the Admiralty are satisfactory. (*b*) Special promotions from the rank of Staff Surgeon to that of Fleet Surgeon will be made at their Lordships' discretion in

Full Pay.

Rank.	Daily.	Annual.
	£ s. d.	£ s. d.
Surgeon—		
On entry	0 14 0	255 10 0
After 2 years	0 15 0	273 15 0
„ 4 „	0 17 0	310 5 0
„ 6 „	0 18 0	328 10 0
Staff Surgeon—		
On promotion	1 0 0	365 0 0
After 2 years	1 1 0	383 5 0
„ 4 „	1 4 0	438 0 0
„ 6 „	1 5 0	456 5 0
Fleet Surgeon—		
On promotion	1 7	492 15 0
After 2 years	1 8 0	511 0 0
„ 4 „	1 10 0	547 10 0
„ 6 „	1 11 0	565 15 0
„ 8 „	1 13 0	602 5 0
„ 10 „	1 15 0	638 15 0
Deputy Surgeon-General	2 5 0	821 5 0
Surgeon General	—	1300 0 0

The medical officers in charge of the following hospitals and sick quarters will be granted charge pay: Haslar, Plymouth, Chatham, *Malta, Hong Kong*, Bermuda, Portland, Yarmouth, Haulbowline

Cape, Gibraltar, Shotley, Yokohama, and Deal. The rate of charge pay will be as follows:—

	s.	d.	
Surgeon-General	10	0	a day.
Deputy Surgeon-General	7	6	,,
Fleet Surgeon of over 4 years' seniority	5	0	,,
Fleet Surgeon of under 4 years' seniority and Staff Surgeon o[illegible] ...	2	6	,,

At Chatham, Hasla[illegible] is granted of 5s. daily to Deputy Surgeons-([illegible] Surgeons in charge of sections. Also charge pay at 3s. 6d. a day is granted to the Senior Medical Officers of all seagoing ships with complements over 650.

The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows:—

—	At home.	Abroad.
	£	£
Deputy Surgeons-General	67	112
Fleet Surgeons and Staff Surgeons of over 4 years' seniority	53	112
Staff Surgeons of under 4 years' seniority and Surgeons...	39	108

These allowances are also granted to medical officers of marine divisions and dockyards at the Marine Rendezvous, and to the Inspecting Officer of the Royal Navy Auxiliary Sick Berth Staff.

An allowance of 5s. a day, in addition to full pay, is granted to the senior medical officer, being a Fleet or Staff Surgeon, of a flag-ship bearing the flag of a Commander-in-Chief. An allowance of 2s. 6d. a day is granted to the senior medical officer, being a Fleet or Staff Surgeon, of the ship bearing other flags or broad pendants. The following charge allowances may be granted to medical officers in charge of hospital ships: if above the rank of fleet surgeon, 5s. a day; and if of the rank of fleet surgeon or junior, 3s. 6d. a day. Medical officers conducting the courses of instruction will receive the following special allowances: At Greenwich, the Professor of Bacteriology, £150 a year; the Professor of Hygiene, £150 and £50 for charge of the studies of naval officers undergoing instruction. At Haslar, the Fleet Surgeon, £150; the Junior Officer instructing sick berth staff, £50; at Plymouth and Chatham the same allowance of £50 is granted. Medical officers employed elsewhere than at a hospital, and not victualled in kind, receive an allowance of 1s. 6d. a day in lieu of provisions, fuel, and lights. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

The emoluments of the medical headquarters staff at the Admiralty are: Medical Director-General, £1800 per annum; Deputy Director-General, £1100 per annum; Assistants to Director-General, each £750 per annum.

Half Pay.

Rank.		Daily.			Yearly.		
Surgeon—		£	s.	d.	£	s.	d.
Under 2 years' full-pay service	Including Civil Hospital Appointment.	0	6	0	109	10	0
After 2 years' full-pay service		0	7	0	127	15	0
,, 4 ,, ,,		0	8	0	146	0	0
,, 6 ,, ,,		0	9	0	164	5	0
Staff Surgeon—							
On promotion		0	10	0	182	10	0
After 2 years' service in rank		0	11	0	200	15	0
,, 4 ,, ,, ...		0	12	0	219	0	0
,, 6 ,, ,, ...		0·13		0	237	5	0
Fleet Surgeon—							
On promotion		0	14	0	255	10	0
After 2 years' service in rank		0	15	0	273	15	0
,, 4 ,, ,, ...		0	17	0	310	5	0
,, 6 ,, ,, ...		0	18	0	328	10	0
,, 8 ,, ,, ...		0	19	0	346	15	0
,, 10 ,, ,, (maximum) ...		1	0	0	365	0	0
Deputy Surgeon-General—							
On promotion		1	5	0	456	5	0
After 2 years' full-pay service in rank		1	7	0	492	15	0
,, 4 ,, ,, ...		1	9	0	529	5	0
Surgeon-General		1	18	0	693	10	0

Candidates will do well to notice that the regulations issued to applicants do not put any limit on the amount of half-pay service which they may be compelled to undergo, also that time on half-pay counts only one-third towards retirement.

Retirement.

Compulsory retirement will be as follows:—

Surgeon-General and Deputy Surgeon General, R.N.	At the age of 60, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined. Except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of a Surgeon-General on the active list, the age for the retirement of such Inspector-General may be extended to 62.	To be retired irrespective of age if found physically unfit for service.
Fleet Surgeon, Staff Surgeon, and Surgeon.	At the age of 55, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined.	

The special attention of candidates is directed to the following rules under which officers are allowed to withdraw from the service after four years' full pay service in the Royal Navy, with the advantage of joining the Reserve of Naval Medical Officers:—

After four years' service in the Royal Navy, an officer, if he wishes, may pass from active service to the Reserve of Naval Medical Officers, when he will reap the following advantages:—

(1) He will be granted a *gratuity of* £500 on passing into the Reserve.

(2) His name will be retained in the Navy List; he will retain his naval rank and be entitled to wear his naval uniform under the regulations applying to officers on the retired and reserved lists of His Majesty's Navy.

(3) If he agree to remain in the Reserve for four years he will receive a retaining fee of £25 per annum. If at the expiration of this period he agree to remain in the Reserve for a further period of four years he will continue to receive the same retaining fee.

Should an officer prefer it, however, he may simply enter the Reserve for a period not exceeding eight years, with power to give six months' notice of his intention to resign his position at any time (in which case he will receive no retaining fee). He may also adopt this method of Reserve service after the expiration of four years served under the conditions referred to in (3), by renouncing his retaining fee for his last four years' service in the Reserve.

No officer will be allowed to remain in the Reserve for a longer period than eight years. Whilst belonging to the Reserve, officers must report any change of address to the Secretary of the Admiralty.

Officers of the Reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service they will receive the rate of pay—viz., 17s. a day and allowances—to which they would have been entitled after four years' service on the active list.

Voluntary retirement and withdrawal will be allowed as follows: (*a*) Every officer will have the option, subject to their Lordships' approval, of retiring after 20 years' full-pay service on the scale of retired pay provided in the table below, or with a gratuity on the scale provided in that table if not eligible for retired pay. (*b*) At the expiration of four, eight, 12, or 16 years' full-pay service every officer will be permitted, subject to their Lordships' approval, to withdraw from the Naval Service, receiving a gratuity on the scale laid down in the table below. It is to be noted that the four years' service is exclusive of time served as resident officer in a civil hospital. The name of an officer so withdrawing will be removed from the list of the Navy, with which all connexion will then be severed, except in the case of officers who withdraw after four years, who are liable to serve in the Reserve. (*c*) Applications from officers to retire or withdraw or resign their commissions will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry. In order that arrangements may, as far as possible, be made for the relief of officers who may wish to withdraw on a gratuity it is desirable that six months' notice of their wish should be forwarded for the consideration of their Lordships. The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

Gratuities and retired pay will be awarded on retirement and withdrawal on the undermentioned scale:—

Rank.	Gratuities.			Daily.			Yearly.		
Surgeon, Staff Surgeon, and Fleet Surgeon—	£	s.	d.	£	s.	d.	£	s.	d.
After 4 years' full-pay service...	500	0	0	—			—		
After 8 years' full-pay service*	†1000	0	0	—			—		
After 12 years' full-pay service*	1500	0	0	—			—		
After 16 years' full-pay service*	2250	0	0	—			—		
Fleet Surgeon—									
After 20 years' service ...	—			‡1	0	0	365	0	0
After 24 years' service (including proportion of half-pay time)	—			‡1	2	6	410	12	6
After 27 years' service (including proportion of half-pay time)	—			‡1	5	0	456	5	0
After 30 years' service (in- [illegible] of 55	—			‡1	10	0	547	10	0
Deputy Surgeon-General ...	—			1	15	0	639	15	0
Surgeon-General	—			2	0	0	730	0	0

* Including time served as resident in civil hospital.

† The gratuity will not exceed £500 in case of a Surgeon retired for failure to pass for Staff Surgeon.

‡ To obtain this rate an officer must hold the commission of Fleet Surgeon.

An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the Service, will receive the half pay of his rank, or, with the consent of their Lordships, a gratuity on the scales given in the above table, but such officer will *not* be entitled to receive any special compensation for the disability in addition to the gratuity as above.

An officer retired with less than 20 years' service on account of disability, contracted in but *not* attributable to the Service, will receive—(*a*) if he has over eight years' full-pay service, either a gratuity on the scale given above or half-pay according as their Lordships think fit; (*b*) if he has less than eight years' full-pay service, such gratuity as their Lordships think fit, not exceeding the rate of £125 for each year of full-pay service. If the health of a surgeon breaks *down* before he completes 20 years' service, even if his *disability* be contracted in the Service or be due to climatic causes, he is liable at *once* to be placed on the retired list, receiving only a gratuity. This point should be well noted, as the position is a most unjust one. *It* should be clearly laid down what is to be understood by "attributable."

In circumstances other than those specified in the last two paragraphs, and other than misconduct, neglect of duty &c an officer retired with less than 20 years service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in the table above if he has eight years full pay service and on that provided in the last paragraph (*b*) should his full pay service not amount to eight years The power vested in their Lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit An officer retiring after 20 years full pay service will be eligible if recommended by the Medical Director General for distinguished or meritorious service, to receive a step of honorary rank such step to be awarded at their Lordships discretion, and not to confer any claim to increase of retired pay or of widow s pension All retired officers will be liable till the age of 55 to serve in time of declared national emer-

Widow s Pension

When an officer retires or withdraws *on a gratuity* his widow and children will have no claim to per
In respect to other officers on the
pension ranges from £50 per annum
for the widow of an Inspector Gener
granted ranging from £9 to £20 pe
reserve who during re employment
lives from causes attributable to tl
regulations as regards compensation for themselves or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent Active List

Miscellaneous

a fleet is to be recognised
He will be on the staff
an aiguillette he will
nd sanitary matters and
he Admiralty He will

Hospital pensions of £100 a year and 15 of £50 a year awarded to

or Army
Staff Surgeon or
ship
d down in the

We recognise that the Admiralty has made a considerable effort to render the Medical Service attractive to men of a good professional stamp By the regulations recently promulgated promotion has been accelerated, special promotion in the lower grades has been made possible in cases of distinguished service or conspicuous professional merit, and encouragement to enter the service, in the shape of earlier promotion, has been given to men who have held resident posts in recognised hospitals A feature of the regulations is the permission to withdraw at the end of four years with a gratuity of £500 a small increase of pay has been made to medical officers all round, and senior medical officers are put in a materially better position if they are serving in large battle ships or cruisers Deputy-Surgeon Generals get the 3*s* daily that they did not get when pay was last re adjusted The rewards now offered to those who pass the examination for Staff Surgeon and the severe penalties held before those who fail should ensure the medical officers of eight years' service being men of ability and industry. But we regret that there is still no mention of specialist pay such as can be got by young officers of energy in the Army and Indian Service, nor is there any acceleration of promotion for scientific work

If pay has been increased, in respect of allowances, the medical officers of the Navy, up to the senior ranks, are not as well off as those of the Royal Army Medical Corps There will also be discontent until the medical officers are unhampered in the performance of their important work by the executive officers The medical officers should have control over the sick bay staff in ships, and over nurses and other attendants in hospitals, and executive officers should no longer figure as presidents of "medical surveys" The authority of the Director General must be made adequate More care must still be taken that medical officers are assigned fitting cabin accommodation To make the service thoroughly efficient the medical officers must be given authority and position commensurate with their responsibilities, as has been done in the case of the Engineer department.

ARMY MEDICAL SERVICE

During recent years the medical service of the Army has passed through many stages of evolution, and we consider that in all essential matters the changes have been distinctly in the direction of advance and improvement, not only for the officers composing this service, but in relation to the Army at large The formation of the Royal Army Medical Corps by the Royal Warrant of 1898, when Lord Lansdowne was War Minister, marked the first great step; then came a period of strain during the war in South Africa, when the medical services were exposed to fierce criticism The outcome of this was the appointment of a committee of inquiry in 1901 by Mr Brodrick (now Lord Midleton), over which he himself presided A Royal Warrant embodying the recommendations of Mr Brodrick's Committee was issued in 1902, which regulates the existing conditions of service; in 1907 free passages to India were granted for the wives and families of medical officers, whether employed on duty or not, an important concession, and one evidencing the liberal spirit of the War Office towards the medical service

Since 1907 several important changes have been made from time to time Prior to this date promotion from the rank of Major to Lieutenant Colonel was made by seniority after the passing of an examination on attaining 20 years' service, the establishment of Lieutenant-Colonels being unlimited Under a new clause introduced in the Royal Warrant the establishment of Lieutenant Colonels was made a fixed number and limited to 120 Under present rules no promotion to the rank of Lieutenant Colonel can take place unless three conditions are fulfilled—(1) there is a vacancy on the fixed establishment, (2) the officer has passed an examination for promotion, (3) he is selected as suitable for promotion In the Colonel s grade another important and far reaching change has been made since Jan 9th, 1907 An officer promoted to the rank of Colonel since this date, on completing four years' service in the rank, is placed on half pay unless further promoted or retired from the service Officers of the substantive rank of Colonel were also removed from the Royal Army Medical Corps, and have been since shown in the Army List as belonging to the Army Medical Service, they have also a distinctive uniform

REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS (ISSUED WITH ARMY ORDERS DATED JANUARY 1ST 1912)

A candidate for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination and must be unmarried
be registered under the
A candidate must com
declaration and submit
ossible before the date on

APPLICATION OF A CANDIDATE FOR A COMMISSION IN THE ROYAL ARMY MEDICAL CORPS *

(*A Candidate will not be permitted to compete oftener than twice*)

1 Name in full
2. Address
3 Date of birth †

not

he candidate pursued his
ames of the deans or other

Declaration

(N B—A mis statement by the candidate will invalidate any subsequent appointment and cause forfeiture of all privileges for services rendered)

I hereby declare upon my honour that the above statements are true to the best of my knowledge and belief and further:—

health

4 I also declare that my vision is good with either eye (with or without the aid of glasses as the case may be)

Signature
Date

* All communications to be addressed to the Secretary, War Office, Whitehall, S W

ROYAL ARMY MEDICAL CORPS: RATES OF PAY AND ALLOWANCES.

Rank.	Pay.		Servant allowance.		Lodging allowance.*		Fuel and light allowance.*		Forage and stabling allowances.		Total per annum.
	Per diem.	Per annum	Per diem.	Per annum.	Per diem.	Per annum.	Per diem.	Per annum.	Per diem.	Per annum.	
	£ s. d.	£ s. d.	s. d.	£ s. d.	s. d.	£ s. d.	s. d. Average.	£ s. d.	s. d. Average.	£ s. d.	£ s. d.
Director-General...	—	2000 0 0	—	—	—	—	—	—	—	—	2000 0 0
Deputy Director-General... ...	—	1500 0 0	—	—	—	—	—	—	—	—	1500 0 0
Assistant Director-General ...	—	850 0 0	—	—	—	—	—	—	—	—	850 0 0
Deputy Assistant Director-General	—	750 0 0	—	—	—	—	—	—	—	—	750 0 0
Lieutenant	0 14 0	255 10 0	1 0	18 5 0	2 3	41 1 3	0 7⅓	11 2 11½	—	—	325 19 2½
Captain	0 15 6	282 17 6	1 0	18 5 0	3 0	54 15 0	0 10⅔	16 4 3	—	—	372 1 9
And after 7 years' full pay service	0 17 0	310 5 0	1 0	18 5 0	3 0	54 15 0	0 10⅔	16 4 3	—	—	399 9 3
And after 10 years' full pay service	1 1 0	383 5 0	1 0	18 5 0	3 0	54 15 0	0 10⅔	16 4 3	—	—	472 9 3
Major	1 3 6	428 17 6	1 0	18 5 0	4 0	73 0 0	1 2⅔	22 5 10	2 3	41 1 3	583 9 7
Major after 3 years' service as such	1 6 0	474 10 0	1 0	18 5 0	4 0	73 0 0	1 2⅔	22 5 10	2 3	41 1 3	629 2 1
Lieutenant-Colonel	1 10 0	547 10 0	1 0	18 5 0	4 6	82 2 6	1 2⅔	22 5 10	2 3	41 1 3	711 4 7
Lieutenant-Colonel after 3 years' service as such	1 15 0	638 15 0	1 0	18 5 0	4 6	82 2 6	1 2⅔	22 5 10	2 3	41 1 3	802 9 7
Colonel	2 5 0	821 5 0	1 0	18 5 0	5 6	100 7 6	1 6⅓	27 17 4	2 3	41 1 3	1008 16 1
Surgeon-General...	3 0 0	1095 0 0	2 0	36 10 0	11 0	200 15 0	2 1	38 0 0	4 3	77 11 3	1447 16 3

* These allowances are not issued when quarters are provided.

case he has passed the necessary examination, and is recommended for promotion.

Promotion to the rank of Lieutenant-Colonel to complete an establishment shall be made by selection from Majors who have qualified in such manner as may be prescribed by the Army Council.

If an officer has passed with distinction the examination qualifying for promotion to the rank of Major, the 12 years' service required to render him eligible for that rank may be reduced by 18 or 12 months, according to the standard of marks obtained.

Promotion to the rank of Colonel to complete an establishment shall be made by selection from Lieutenant-Colonels. An officer promoted to the rank of Colonel shall, unless retired, be placed on half-pay on completing a period of four years' service in such rank. A Lieutenant-Colonel may also be promoted to the rank of Colonel if specially recommended for distinguished service in the field. Promotion to the rank of Surgeon-General shall be made by selection from Colonels. A Colonel may also be promoted to the rank of Surgeon-General for distinguished service in the field. An officer of the Royal Army Medical Corps is eligible for promotion to brevet rank. A Captain after at least 6 years' service, a Major or Lieutenant-Colonel, may be promoted to the next higher rank by brevet for distinguished service in the field or for meritorious or distinguished service of an exceptional nature other than in the field. If the officer dies before the date on which the notification of his promotion for distinguished service in the field appears in the *London Gazette* the promotion shall bear the date which it would have borne had the officer not died. Distinction in original investigation or research may, in the case of officers of the Royal Army Medical Corps, be regarded as "distinguished service of an exceptional nature other than in the field." An officer who may in the opinion of the Army Council have been prevented, in very special circumstances, from qualifying for promotion, or who, having failed to qualify, may have been debarred from further opportunity of qualifying, may be provisionally promoted. If, however, he fails to qualify on the first available opportunity his promotion shall be cancelled and he shall be retired from the service. An officer may reckon towards his promotion any time, not exceeding one year, during which he may have been on half-pay on account of ill-health caused by military service; and also any time not exceeding two years during which he may have been on half-pay on reduction. An officer while seconded shall continue to be eligible for selection for promotion as if he had remained on the establishment, and his service while seconded shall reckon towards such promotion.

RANK.

The Director-General of the Army Medical Service shall hold the substantive rank of Surgeon-General and shall rank in relation to combatant officers as a Lieutenant-General if recommended by the Army Council. All other Surgeon-Generals shall rank as Major-Generals in relation to combatant officers. Officers of the Army Medical Service above the rank of Colonel shall hold the substantive rank of Surgeon-General.

RETIREMENT.

(a) *Voluntary Retirement.*

An officer of the Army Medical Service may be permitted to retire in cases in which such retirement may be deemed expedient by the Army Council.

Scale of Retired Pay.

	Yearly. £
Director-General after 3 years' service in the appointment (with 30 years' service)	1125
	Daily. £ s. d.
Surgeon-General	2 0 0
Colonel—	
Under 4 years' service as such, but with 30 years' total service	1 10 0
After 4 years' service as such	1 15 0
If not qualified as above	the rate for a lieutenant-colonel.
Lieutenant-Colonel—	
After 20 years' service	1 0 0
,, 25 ,, ...	1 2 6
,, 28 ,, ...	1 7 6
Major, after 20 years' service	1 0 0

	Gratuity. £
Major or Captain—	
After 5 years' service in the rank of captain	1000
,, 3 ,, ,, major	1800
,, 6 ,, ,, ,, ...	2500

Except in the case of a Colonel, or a Lieutenant-Colonel, an officer who, on voluntary retirement, has served for less than three years in the rank from which he retires, is entitled only to the gratuity or retired pay assigned to the next lower rank.

(b) *Retirement on Account of Age or Limitation of Period of Service.*

The retirement of officers of the Army Medical Service is compulsory at the following ages: Surgeon-General, 60; Colonel, 57; and other officers, 55. A Major shall retire on completion of 25 years' service if he has been superseded for promotion; or, if he fails to qualify for promotion, on completion of 20 years' service. A Captain who fails to pass for promotion may present himself at the next examination; if he again fails he is retired at once on any gratuity for which he may be eligible, or if not so eligible as soon as he completes 5 years' service as Captain. A Lieutenant who does not qualify within 3½ years of appointment must resign if he fails at the next examination unless there are special circumstances for consideration. Special employment in a national emergency as an officer, or in a position usually filled by an officer, before entry into the corps is reckoned towards retired pay or gratuity.

(c) *Retirement on Account of Medical Unfitness.*

An officer placed on the half-pay list on account of medical unfitness shall, if not previously retired, be retired from the Army at the expiration of five years from the date on which he was placed on the half-pay list, or, if reported by the regulated medical authority to be permanently unfit for duty, on the officer's application, at such earlier date as may be decided by the Army Council.

The scale of retired pay on account of age or medical unfitness is the same as under voluntary retirement, except that the condition of three years' service in the rank is omitted.

Rates for Officers not qualified for Retired Pay or Gratuity on Voluntary Retirement.

If the unfitness was caused by military service retired pay equal to the half pay of his rank. If not so caused, provided the officer has at least 12 years' service, retired pay equal to the half pay of his rank for such period only, not exceeding five years from the date of the officer's retirement from the Army, after five years on half pay under Article 435, as the Army Council shall determine according to the merits of the case.

KING'S HONORARY PHYSICIANS AND HONORARY SURGEONS.

Six of the most meritorious officers of the Army Medical Service on the active list shall be named Honorary Physicians and six Honorary Surgeons. On appointment as Honorary Physician or Honorary Surgeon an officer under the rank of Colonel in the Army Medical Service may be promoted to the brevet rank of Colonel. A Lieutenant-Colonel appointed Honorary Physician or Honorary Surgeon shall receive pay at the rate laid down for a Colonel of the Royal Army Medical Corps when qualified for promotion to that rank. An officer shall relinquish the appointment of Honorary Physician or Honorary Surgeon on retirement.

LEAVE OF ABSENCE.

Full pay may be given during ordinary leave of absence for 61 days in each year at home stations; in the [illegible] ...ds and West Indies leave for two years, and in [illegible] ments, and South Africa leave for three y[illegible]

SICK LEAVE.

An officer of the Army Medical Service may draw full pay for the undermentioned periods during sick leave granted on the recommendation of a Medical Board, provided there is reasonable probability that he will ultimately be fit to return to duty:—

1. In ordinary cases for a period not exceeding 12 months.
2. In very special cases, such as loss of health due to tropical service or to active operations, the period may be extended, but it shall not exceed 18 months in all.

When a medical officer is absent from duty on account of sickness, up to a period of 30 days, if duly certified by a medical officer, this period shall not be included in the period of absence on leave to which the issue of pay is limited, provided the general officer commanding at the station considers that the circumstances of the case warrant such a concession. Any excess of 30 days will be included.

with three years' service as such, £.

tenant, under five years' service, 6s.;

10s.; after 15 years, 13s. 6d.

SERVICE ABROAD.

When an officer's turn arrives for foreign service he is duly warned

SERVICE ON THE WEST COAST OF AFRICA.

officer leaves the coast on account of sickness he may reckon any period of service on the coast, however short, in order to make up the 12 months' coast service which is required to entitle him to count his service double. Except when the officer has been invalided, no period of less than six months' of service on the coast shall reckon double under this article, or count towards the required period of 12 months.

WIDOWS' PENSIONS.

Widows' pensions and compassionate allowances for children of deceased officers are given under certain conditions specified in the Royal Warrant for Pay and Promotion. There is also an Army Medical Officers' Widows' and Orphans' Fund on mutual assurance principles.

PAY IN INDIA.

in the pay and con-

, as elsewhere. The

INDIAN MEDICAL SERVICE.

The grades of officers in the Indian Medical Service are the same as those of the Army Medical Service and Royal Army Medical Corps. The Director-General will rank either as Major-General or Lieutenant-General as may be decided in each case by the Secretary of State for India in Council.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR ADMISSION TO THE INDIAN MEDICAL SERVICE.

Candidates must be natural born subjects of His Majesty, of

THE LANCET.

Declaration and Schedule of Qualifications o be Filled up by Candidates.

I declare that I labour under no mental or constitutional di-

nor any imperfection or disability that can interfere with the efficient discharge of the duties of a medical officer.

I hereby declare upon my honour that the above statements ar

to the best of my knowledge and belief.

I inclose, in accordance with Paragraph 4 of the Reguls

(a) proof of age; (b) two certificates of character; (c) certific

having attended a course of ophthalmic instruction, showing th

course included instruction in errors of refraction; (d) evidenc

registrable qualification; (e) *in case of natives of India or*

educated in that country only, a certificate from the Director-General, Indian Medical Service.

Signature ....

Date ...., 19 .

1. Name in full.

2. Address. (*Any alteration to be notified to the Military Secretary, India Office, London, S.W.*)

3. Date of birth. (*This must be supported by a certificate or statutory declaration.* See *Paragraph 4 of the Regulations.*)

4. Profession or occupation of father, and whether, at the time of candidate's birth, his father was a British subject of European or East Indian descent.

5. *Statement as to whether the candidate is married or single.*

6. Colleges and Medical Schools at which the candidate has received his medical education.

7. Medical School in which the candidate completed his course as a medical student, and name of the Dean or other responsible authority.

8. Degrees of B.A. or M.A.; details as to any prizes, university honours, &c.

9. Registrable qualifications.

10. Date of examination at which the candidate proposes to present himself.

11. Date of any previous occasions on which the candidate may have presented himself for examination for admission to the Indian Medical Service, or other examination for the Public Services.

12. Particulars of any commission or appointment held in the Public Services.

The declaration must be accompanied by the following documents:—

a. *Proof of age* either by Registrar-General's certificate, or, where such certificate is unattainable, by the candidate's own statutory

can be obtained at the India Office,

etary of State, by such evidence as

ertificate of baptism which does not

In the case of natives of India and

essary for a candidate to obtain a

y in the form laid down by the

follows:—

	Marks.
... ...	1200
... ...	1200
... ...	600
... ...	900
... ...	600
... ...	600

N.B.—The examination in medicine and surgery will be in part practical and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical

(2) military and tropical medicine, (3) military surgery, (4) pathology of diseases and injuries incidental to military and tropical service; and (5) military medical administration.

The course at Aldershot will include instruction in (1) internal economy, (2) Army Service Corps subjects, (3) hospital administration, (4) stretcher and ambulance drill, (5) equitation, and (6) map reading.

Lieutenants-on-probation will receive an allowance of 14*s.* per diem, and during the period of instruction they will be provided with [illegible] are not provided they will obtain the u[illegible] in lieu thereof), to cover all costs of m[illegible] e required to provide themselves with [illegible] e uniform and articles required will be sent to each successful candidate.

A lieutenant-on-probation who is granted sick leave before the completion of his course of instruction and final admission to the service will receive pay at the rate of 10*s.* 6*d.* a day for the period of his sick leave.

Candidates will be required to conform to such rules of discipline as may from time to time be laid down.

At the conclusion of each course candidates will be required to pass an examination on the subjects taught, and in order to qualify each lieutenant on probation must obtain 50 per cent. of the total marks. If he fails to qualify in either of these examinations he will be liable to removal from the service, but if specially recommended he may be allowed to undergo the course or courses again under certain restrictions as to pay and position.

Officers appointed to the Indian Medical Service will be placed on one list, their position on it being determined by the combined results of the preliminary and final examinations. They will be liable for military employment in any part of India, but in view to future transfers to [illegible] they will stand posted to one of the following civil [illegible] Burma; (2) Bombay with Aden; (3) Upper [illegible] Provinces, Punjab, and Central Provinces; and (4) Lower Provinces—i.e., Bengal, Bihar, and Orissa. The allocation of officers to these areas of employment will be determined upon [illegible] of all the circumstances, including, as far as possible, [illegible] s Officers transferred to civil employment, [illegible] ed within the area to which they may have [illegible] liable to employment elsewhere according to the exigencies of the service.

A lieutenant who, within a reasonable period before the date at which he would otherwise sail for India, furnishes proof of his election to a resident appointment (or to a preliminary appointment leading in due course to a resident one) at a recognised civil hospital, may be [illegible] to sail f[illegible] 14 days of the termination of the appointment. While [illegible] no pay from Indian funds, but his service [illegible] rease of pay, and pension will reckon from the date borne on his commission. In special cases permission may be granted to lieutenants to delay their departure for India, in order *to sit for some further medical examination. Lieutenants remaining* in England under such circumstances will receive no pay for any period beyond two months *from the date of termination of the course* [illegible] the period elapsing before the day on which the [illegible] of the same seniority sail to India exceeds [illegible] ieutenants allov[illegible] receive pay up to that day. In such cases [illegible] day of embarkation for India. All the [illegible] subject to the general exigencies of the service. Before the commission of a lieutenant-on-probation is confirmed he must be registered under the Medical Acts in force at the time of his appointment. Candidates who have been specially employed in consequence of a national emergency, either as an officer, or in a position usually filled by an officer, will be allowed, under certain circumstances, to reckon such service towards pension.

Officers on appointment are, when possible, provided with passage to India by troop transport; when such accommodation is not available passage at the public expense is provided by steamer, or a passage allowance granted if preferred. Wives of married officers are entitled to passage by troop transport, if available. Any officer who may neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of terminating his course of instruction, or within 14 days of the termination of his hospital appointment if the Secretary of State has permitted him to hold one, will be considered as having forfeited his commission unless special circumstances shall justify a departure from this regulation.

A course of instruction in sanitary methods, rules, and regulations as carried out in Indian cantonments has recently been instituted for young officers of the Indian Medical Service and the Royal Army Medical Corps on first arrival in the country. The nature of the diseases to be combated, the social and religious customs and prejudices of the various races, and the limited resources of money and material make large modifications from European methods necessary. Lieutenants of both services are now posted on arrival either to Rawal Pindi, Poona, Lucknow, or Bangalore for one month for this course, which is carried out under the supervision of the senior medical officer and sanitary officer. The instructors are medical officers nominated by the principal medical officer, India, and demonstrations on various subjects are given by other officers, staff, engineer, and medical. The course consists of demonstrations and inspections in all parts of the lines of British and Indian troops, bazaars, Government dairies, bakeries; slaughter-houses, trade premises of dairymen, bakers, butchers, and aerated water manufacturers and dhobies' houses; market and water-supplies; methods of washing clothes; surface drainage, removal and disposal of sewage and refuse, antimalarial measures, disinfection, cantonment hospitals, control of venereal diseases; plague prevention, methods of hospital administration, &c. The officers under instruction thus have an opportunity of learning something of native customs and are encouraged to learn the vernacular, so as to be less dependent upon their subordinates when first put in responsible positions.

PROMOTION.

A Lieutenant is promoted to the rank of Captain on completing three years' full-pay service from the date of first commission, provided he passes an examination in military law and military medical organisation. An officer will not be permitted to remain in the service if at any time during [illegible] therein is considered undesirable. [illegible] Major after nine years' full-pay servi[illegible] respects qualified and recommended; this promotion may be accelerated by six months in the case of officers who fulfil certain specified conditions. A Major is [illegible] completion of eight years' full-pay [illegible] spects [illegible] given [illegible] rvice a [illegible] compulsory retirement are 55 for Lieutenant-Colonel and Major, 60 for Surgeon-General and Colonel, and 62 for the Director-General. In special cases an officer may be continued in employment, for the good of the service, with the sanction of the Secretary of State.

LEAVE RULES.

Officers of the Indian Medical Service below the rank of Colonel may be granted: 1. Privilege leave under such regulations as may from time *to time be in force.* 2. *Leave out of India for no longer period* than one year, capable of extension to two years' absence from duty, on the *following pay for officers in military employment* (officers in civil employment are entitled to higher rates): After arrival in India, on first appointment, £250 a year, after the commencement of the tenth year's service for pension, £300 a year; after the commencement of the fifteenth year's service for pension, £450 a year, after the commencement of the twentieth year's service for pension, £600 a year; and after [illegible] twenty-fifth year's service for pension, £700 [illegible] but for the period of one year only, on full [illegible] staff pay of appointment. No extension of [illegible] rom duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay. An officer unable on account of the state of his health to return to duty within the maximum period of two years' absence, unless he is specially granted an extension of leave without pay, is placed on temporary half-pay or the retired list, as the circumstances of the case may require. An officer is *also liable to be placed* on half-pay or the retired list should his health require an undue amount of leave, whether in or out of India. Leave may be granted at any time, but solely at the discretion of the civil or military authorities in India under whom an officer may be serving. Officers of the Administrative grades may be granted leave not exceeding eight months, besides privilege leave, during [illegible] ppointment Extra leave (known as study leave) may [illegible] of pursuing special courses of study at the rate of one [illegible] for each year's service up to 12 months in all. An officer on leave is required to join at once on being recalled to duty unless certified by a medical board as unfit to do so.

PAY AND ALLOWANCES.

The rate of pay drawn by Lieutenants of the Indian Medical Service previous to arrival in India is 14*s.* a day, but a Lieutenant (1) who has been permitted by the Secretary of State to hold a hospital appointment will receive no pay while holding it; (2) who is detained by illness in this country will be paid at the rate of £250 a year from the date on which h[illegible] rkation, and at t[illegible] e of

Pay [illegible] e is embarkation, and an advance of two months pay [illegible] also made prior to [illegible] in India.

The following are [illegible] y drawn by officers of the Indian Medic[illegible] heir arrival in India (N.B.—1 rupee = 1*s.* 4*d.*):—

Rank.	Unemployed pay.	Grade pay.	Staff pay.	In officiating medical charge of a regiment.	In permanent medical charge of a regiment.
	Rs.	Rs.	Rs.	Rs	Rs.
Lieutenant	420	350	150	425	500
Captain	475	400	150	475	550
,, after 5 years' service ...	475	450	150	525	600
,, after 7 years' service ...	—	500	150	575	650
,, after 10 years' service ...	—	550	150	625	700
Major	—	650	150	725	800
,, after 3 years' service as Major	—	750	150	825	900
Lieutenant-Colonel	—	900	350	1075	1250
,, ,, after 25 years' service ...	—	900	400	1100	1300
,, ,, specially selected for increased pay	—	1000	400	1200	1400

NOTES.—(*a*) An officer, in officiating charge of a regiment, who has [illegible] draws grade pay *plus* half staff [illegible] cers of less than seven years' [illegible] fic appointment, also when [illegible] e of native regiments unless [illegible] *Hindustani known as the* [illegible] han seven years' service draw [illegible]

[illegible] salaries (subject to certain limitations) equal to half the difference between their salaries converted at (1) 1s 6d the rupee, and (2) the standard Government rate, which has been fixed at 1s 4d the rupee [illegible]

[illegible] following consolidated salaries :—

	Rs. per mensem.
Colonel, 16 (some in civil employ) from	1800 to 2500
Surgeon-General, 1 @	2700
" 2 @	2500
" (the Director-General I.M.S.) 1 @	3000

Specialist pay at the rate of Rs. 60 a month is granted to officers below the rank of Lieutenant-Colonel who may be appointed to certain posts.

These are 60 in number, in the subjects of (*a*) *prevention of disease*, with charge of laboratory, (*b*) advanced operative surgery, (*c*) ophthalmology, (*d*) skiagraphy, (*e*) midwifery and diseases of women and children, (*f*) mental diseases, and (*g*) otology, laryngology, and rhinology.

Except in the administrative grades and in certain special appointments officers are not debarred from taking private practice as long as *it does not interfere with their proper duties.*

POSTS IN MILITARY EMPLOY.

[illegible]

POSTS IN CIVIL EMPLOY.

A large number of posts in civil employ are ordinarily filled up from officers of the Indian Medical Service. Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment, and will, on transfer to civil employment, be placed on probation for two years. The principal appointments, together with the salaries attached to each, are stated in *the above table*

Description of appointment.	Approximate number of appointments in each class.	Salary per mensem.			
		When held by a Lieutenant-Colonel.	When held by a Major.	When held by a Captain.	When held by a Lieutenant.
		Rs.	Rs.	Rs.	Rs.
Inspectors-General of Civil Hospitals	6	2250-2500	—	—	—
Sanitary Commissioner with Government of India	1	2000-2500	—	—	—
Inspectors-General of Prisons	8	1500-2000	—	—	—
Principals of Medical Colleges	2	1650-1800	1200-1300	—	—
Professorial Appointments	32	1500-1650	1050-1150	900-950	750
Sanitary Commissioners ...	8	1500-1800	—	—	—
Deputy Sanitary Commissioners...	13	1450-1600	1000-1100	750-900	700
Bacteriological Appointments	11	1500-1600	1050-1150	700-900	650
Superintendents of Central [illegible]	[illegible]	1400-1550	1050-1150	700-900	650
[illegible]	[illegible]	1300-1550	850-1050	600-850	550-650
[illegible] Class)	[illegible]	1300-1450	850-950	600-750	550
Civil Surgeoncies (Second Class)	171	1200-1350	750-850	500-650	450
Probationary Chemical Examiner	1	—	—	600-750	550
Officers deputed to plague duty	—	1450	1000-1100	750-900	700

An allowance of Rs. 100 per mensem is also granted, in addition, to the chief plague medical officers in certain provinces

There are also six Chemical Examiners with Rs. 800-1650 per mensem and a number of Port Health Officers with Rs. 750-1950 per mensem. [illegible]

TENURE OF OFFICE IN ADMINISTRATIVE GRADES.

[illegible] to [illegible] for [illegible] loy- [illegible] lege leave) during a five years' tour of duty involves forfeiture of appointment.

Surgeon [illegible] of the fiv [illegible] unemploy [illegible] in the la [illegible] vacating [illegible] following scale of pay :—

—	Surgeon-General. Per diem.	Colonel. Per diem.
	£ s. d.	£ s. d.
After 30 years' service on full pay	2 5 0	1 14 0
" 25 " " "	2 5 0	1 10 0
" 20 " " " or on promotion, should this period of service not be completed...	2 0 0	1 8 0

A Surgeon-General or Colonel who has completed his term of service and has reverted to British pay may reside in Europe, at the same time qualifying for higher pension

RETIRING PENSIONS AND HALF-PAY.

Officers of the Indian Medical Service will be allowed to retire on the following scale of pension on completion of the required periods of service :—

After 30 years' service for pension...	£700 per annum + £350 after three years' active employment in India as a Surgeon-General, *or* + £250 per annum after five years' active employment as a Colonel, or £125 after three years as a Colonel. Eight months' absence on leave is allowed to count towards actual service in those grades
" 27½ " " "	£600 per annum.
" 25 " " "	£500 "
" 20 " " "	£400 "
" 17 " " "	£300 "

Service for pension counts from date of first commission and [illegible] mporary half pay reckons [illegible] case of an officer placed [illegible] caused by duty, military [illegible]

[illegible] has attained the age of [illegible]

—	Rates of Half-pay.*	
	Per diem.	Per annum.
	£ s. d.	£ s. d.
Under 5 years' service	0 6 0	109 10 0
After 5 "	0 8 0	146 0 0
" 10 "	0 10 0	182 10 0
" 15 "	0 13 6	246 7 6
Lieutenant-Colonel, under 3 years' service as such	1 0 0	365 0 0
Lieutenant-Colonel, over 3 years' service as such	1 7 6	501 17 6

* Officers cannot retire *in India* on half pay.

An officer of less than three years' service, although he may be transferred to the half pay list under the general *conditions of transfer*, will not be granted any half-pay unless his unfitness has been caused by service.

INVALID PENSIONS.

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may be granted an Invalid Pension on the following scale:—

	Per annum.
After 16 years' pension service	£272
,, 15 ,, ,, ,, ...	252
,, 14 ,, ,, ,, ...	232
,, 13 ,, ,, ,, ...	212
,, 12 ,, ,, ,, ...	192

WOUND PENSIONS.

Officers are entitled to the same allowances on account of wounds received in action and injuries sustained through the performance of military duty as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

FAMILY PENSIONS.

The claims to pension of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being.

The widows and families of officers are also entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all officers must, as a condition of their appointment, subscribe from the date of their arrival in India, except in the case of natives of India, for whom it is optional.

HONOURS AND REWARDS.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other Orders, British and Indian, and for good service pensions. Six of the most meritorious officers are named Honorary Physicians and six are named Honorary Surgeons to His Majesty.

PROSPECTS IN THE TWO MILITARY SERVICES.

The Royal Army Medical Corps is at the present time, we believe, on the whole, a thoroughly contented service, although for some time back there has been a feeling of uneasiness and uncertainty, more especially in the senior ranks, as to their future prospects by the adoption of a system of promotion by so-called selection. It is felt that the spirit of the Royal Warrant for promotion has been departed from, thereby causing a block in promotion affecting all ranks. The limitation of the tenure of the colonel's appointments to four years has caused heartburnings in this grade, as after this period, unless promoted, men are now placed on half-pay. Again, the reduction of the cadre establishment of lieutenant-colonels has adversely affected a large number of majors who are well worthy of promotion to the next rank; and it is felt that the rules recently introduced allowing of accelerated promotion from the rank of captain to major have not worked as fairly as it was intended they should have.

The improvements that were introduced by Sir Alfred Keogh, K.C.B., the late Director-General, have, however, been so substantial, both as regards emolument and as affecting the professional and military status of medical officers, that it would be ungracious to refrain from acknowledging the generous spirit that has actuated the War Department authorities in their attitude to the medical service. We feel sure that the good results of this are being, and will continue to be, manifested in an improvement in the health and efficiency of the army at large.

In the Indian Medical Service the recent introduction of the increased pension (£600 per annum) after 27½ years' service has been an important concession; there is still, however, a block in promotion; administrative rank, which used to come after 26 or 27 years', being now generally deferred until over 30 years' service. Limitation of the period of service in administrative rank, as recently adopted in the Royal Army Medical Corps in the case of the colonel's grade, would probably be an improvement. The neglect of the rule that the office of principal medical officer to His Majesty's forces in India may be held by an officer of the Indian Medical Service is still felt to be a grievance. A commission, under the chairmanship of Lord Nicholson, has been inquiring into the military branch of the service, but no report, as far as we know, has been issued up to the present. In the sanitary department the appointments of deputy sanitary commissioner are now not confined to officers of the Indian Medical Service, who are *pro tanto* losers by the change. There are also difficulties in the way of obtaining leave home, though in theory the leave rules are liberal enough. On the whole it can hardly be said that the Indian Service at the present time offers the advantages over the Royal Army Medical Corps, either professional or pecuniary, that it formerly possessed, while changes are foreshadowed that make it inevitable that the status, prospects, and influence of the Indian Medical Service will be affected injuriously. The difficulties met with in attempting to carry the proposed reforms into practice appear to have been much more considerable than was expected by the highest authorities, though neither unknown to, nor ignored by, those having local experience.

PUBLIC HEALTH DIPLOMAS.

INSTRUCTION FOR DIPLOMAS IN SANITARY SCIENCE, PUBLIC HEALTH, STATE MEDICINE, AND TROPICAL MEDICINE.

RESOLUTIONS, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," have been adopted at various times by the General Medical Council from 1902 to 1911.

Rules of the General Medical Council.—The rules require that:

1. The curriculum for a Diploma in Sanitary Science, Public Health, or State Medicine shall extend over a period of not less than nine calendar months.

2. Every candidate shall produce evidence that after obtaining a registrable qualification, which should be registered before admission to examination for the Diploma, he has received practical instruction in a laboratory or laboratories, British or foreign, approved by the licensing body granting the diploma, in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught. (The laboratory instruction shall cover a period of not less than four calendar months, and the candidate shall produce evidence that he has worked in the laboratory for at least 240 hours, of which not more than one-half shall be devoted to Practical Chemistry. The laboratory course should be so arranged as to lay special stress on work which bears most directly on the duties of a medical officer of health.)

3. Every candidate shall produce evidence *either* (i.) that, after obtaining a registrable qualification, he has during six months been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the supervision of: (*a*) in England and Wales, the medical officer of health of a county or of a single or combined sanitary district having a population of not less than 50,000, or a medical officer of health devoting his whole time to Public Health work; or (*b*) in Scotland, a medical officer of health of a county or counties, or of one or more districts having a population of not less than 30,000; or (*c*) in Ireland, a medical superintendent officer of health of a district or districts having a population of not less than 30,000; or (*d*) in the British Dominions outside the United Kingdom, a medical officer of health of a sanitary district having a population of not less than 30,000, who himself holds a registrable Diploma in Public Health; or (*e*) a medical officer of health who is also a teacher in the Department of Public Health of a recognised Medical School; or (*f*) a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps, District, Command, or Division, recognised for this purpose by the General Medical Council; or (*g*) an assistant medical officer of health of a county or of a single sanitary district having a population of not less than 50,000, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instruction and to issue certificates; *or* (ii.) that he has himself held for a period of not less than three years an appointment as medical officer of health of a sanitary district within the British Dominions, and having a population of not less than 16,000.

The certificate for the purpose of Rule 3 (1) must include testimony that the candidate has attended under the supervision of the person certifying on not less than 60 working days. Provided that if the candidate has (i.) produced satisfactory evidence that he has attended a course or courses of instruction in sanitary law, vital statistics, epidemiology, school hygiene, and other subjects bearing on public health administration, given by a teacher or teachers in the department of public health of a recognised medical school; or produce evidence (ii.) that he has been a resident medical officer in a hospital for infectious diseases containing not less than 100 beds during a period of three months,—the period during which he has been engaged in acquiring practical knowledge of his duties under this rule may be reduced to three months, to include an attendance on at least 30 working days.

4. Every candidate shall produce evidence that after

having obtained a registrable qualification he has during *three months attended at least twice weekly the practice* of a hospital for infectious diseases at which he has received instruction in the methods of administration. (Methods of administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the medical superintendence of the hospital generally. In the case of a medical officer of the Royal Army Medical Corps a certificate from a principal medical officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence under Rule 4.)

5. The examination shall be conducted by examiners specially qualified; it shall have extended over not less than four days, one of which shall have been devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the duties of a medical officer of health, including those of a school medical officer.

The regulations in question as to study may be procured at the office of the General Medical Council in London.

University of Oxford.—An examination, conducted partly in writing, partly *vivâ voce*, and in each subject partly practical, is held in Michaelmas and Easter Terms in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The examination is in two parts, which may be taken together or separately; but Part I. must be passed either before or at the same examination as Part II. The fee for admission to the examination is £5 for each part. Successful candidates are entitled to receive the *Diploma in Public Health.* Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of registrable qualification and the time when he presents himself for either part of the examination; (2) he produce evidence of having, after obtaining a registrable qualification, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (3) he produce evidence of having, after obtaining a registrable qualification, attended during a period of six months on one or more courses approved by the Syndicate of practical laboratory [illegible] thology of [illegible] man; and [illegible] ng a registrable qualification, for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) in England and Wales either the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland or Ireland the medical officer of health of a county or of one or more sanitary districts having a population of not less than 30,000; or (*c*) a medical officer of health who is a teacher *in the department of public health of a recognised medical* school; or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps or district; or (*e*) in the British dominions outside the United Kingdom a medical officer of health of a sanitary district having a *population of not less than 30,000 who himself holds* a registrable diploma in public health. A certificate of an assistant officer of health of a county or a large sanitary district may be accepted, provided the medical officer of health *of a county or district consents to the assistant* officer giving such instruction. Any candidate who shall produce evidence that he has himself held an appointment as medical officer of health under conditions not requiring the possession of a special sanitary diploma shall be exempt from this regulation. A candidate who produces evidence that he has himself held, for a period of not less than three [illegible] of health of a sani[illegible] nions and having a [illegible] *l be exempt from the* provision of paragraph (4). The provisions as to previous study shall not apply to medical practitioners registered, or *entitled to be registered, on or before Jan. 1st, 1890.*

The First Part of the examination will comprise (*a*) a written paper of three hours in Chemistry and Physics; (*b*) a three hours' practical and *vivâ voce* examination in Chemistry and Physics. The Written Examination: the subjects will be: Air (Examination, Recognition and Determination of Impurities); Water (Rainfall, Sources and Characters of Waters, Purification and Softening, Methods of Analysis, Distribution and Supply); Soils; Ventilation and Warming; Removal and Disposal of Sewage, House Refuse, Trade Refuse; Offensive Trades in their Chemical and Physical Aspects; Disinfectants; and the Examination of Foods by Chemical and Microscopical Methods. The Practical Examination: Candidates will be expected to exhibit a practical acquaintance with the ordinary methods of analysis and examination used in investigations concerning the subjects of the Written Examination.

The Second Part of the examination will consist of the following parts:—(*a*) Two written papers, each of three hours, dealing with General Hygiene (including Sanitary Engineering, Vital Statistics, and the Laws relating to Public Health); (*b*) a practical and *vivâ voce* examination in General Hygiene; (*c*) a written paper of three hours in Pathology and Bacteriology; and (*d*) a three hours' practical and *vivâ voce* examination in Pathology and Bacteriology. The subjects of these examinations will be as follows:—*General Hygiene.—The Written Examination: The* construction, drainage, heating, and ventilation of dwellings, schools, hospitals, and other similar buildings; the general sanitation of villages and towns; influences which exercise or threaten to exercise an injurious effect on health and physical development; the etiology, symptoms, and methods *of prevention of infectious and other preventable disease;* the effects of food, season, soil, and climate upon health and disease; dangerous and offensive trades; the inspection of food; the principles and methods of Vital Statistics; the laws, statutes, memoranda, &c., relating to Public Health. The Practical and *vivâ voce* Examination: Candidates will be required to show a practical knowledge of outdoor sanitary work. Pathology.—The Written Examination: The general pathology of infection by any organism (including a general knowledge of parasitology and helminthology), immunity, the principles of prophylactic and curative inoculations, serum therapeutics; the special pathological characters of the common human infections; the pathology of the diseases of animals transmissible to man; the conditions affecting the existence of infective agents outside the animal body; the pathology of diseases dependent on occupation. The Practical *vivâ voce* Examination: Candidates will be expected (*a*) to be able to demonstrate the existence of infective agents in pathological material; (*b*) to recognise cultures of the ordinary pathogenetic bacteria; (*c*) to exhibit a knowledge of the ordinary methods of bacteriological investigation, and of the special methods applicable to the examination of air, water, food, soil, and sewage; (*d*) to be familiar with the appearances presented by food which for bacteriological reasons is considered unfit for consumption.

Candidates in Part I. of the examination will be required to produce a certificate (1) of Laboratory Work in Chemistry as applied to Hygiene.

Candidates in Part II. will produce the following further certificates: (2) of a Practical Knowledge of the Duties, Routine and Special, of Public Health Administration; (3) of having had Practical Instruction in Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man; and (4) of having attended the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of the Methods of Administration. The courses of instruction in Chemistry applied to Hygiene and in Pathology and Bacteriology may be taken in the laboratories of any University in the United Kingdom, of any school of the University of London, of the Royal Army Medical College, of University College, Bristol, of any extramural school in Edinburgh, of Anderson's College, Glasgow, The Royal Institute of Public Health, and in any such other laboratory as may, in the case of any particular candidate, be approved of by the Regius Professor of Medicine. In the cases of certificates (2) and (4), *the certificates shall be given in such form* as shall satisfy the secretary to the Boards of Faculties that the candidate has conformed to the write an essay upon some practical hygienic subject. The fee for the examination for the degree of D.Hy. is £5 and for the degree £6 6*s.* The regulations for examination for the Diploma in Public Health (D.P.H.) are the same as those for the degree of Bachelor of Hygiene, except that the candidate is not required to be a graduate in Medicine of a recognised University and the course of study need not be passed at Newcastle-upon-Tyne. The regulations regarding education are in accordance with the new rules of the General Medical Council. The fee for the examination and Diploma in Public Health is 10 guineas.

Victoria University of Manchester.—An examination in Public Health is held twice yearly under the following regulations: The examination is in two parts and is written, oral, and practical. Candidates before entering for either part of the examination must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates of having attended courses of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University; of having attended, after obtaining a registrable qualification, during at least six months, practical instruction in a laboratory approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man; of having, after obtaining a registrable qualification, attended for three months the clinical practice of an approved hospital for infectious diseases; of having, after obtaining a registrable qualification, practically studied the duties of outdoor sanitary work for not less than six months under the medical officer of health of a county or of a large urban district. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. The fee for each part is £5 5*s.*, and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3*s.* Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examinations will begin about the end of March and the middle of July in each year. Holders of the Diploma in Public Health are eligible for examination for the Certificates in School Hygiene and Factory Hygiene after attending the prescribed periods of study and hospital practice.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University, and they must, in addition, have attended a three months' course of Geology in the University. The following are the regulations for Diploma in Public Health (general conditions):—1. All candidates must be registered under the Medical Act. 2. The examinations will be held in the months of March and June and will consist of two parts. No candidate will be allowed to pass Part II. until he has passed Part. I. 3 Candidates may enter for Parts I. and II. separately or at the same time. 4. The examination in each part will be written, oral, and practical. 5. Candidates intending to present themselves for either part of the examination must give notice in writing to the registrar of the University on the date prescribed in the calendar. 6. The fee for each part of the examination is £5. The conditions of admission to the examinations are identical with those approved by the General Medical Council.

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College and pursued the further course of study approved by the General Medical Council in December, 1902, will be admitted to the Examination for the Diploma in *Public Health*, whether they have previously been students of the Birmingham School or not.

University of Liverpool.—The University grants a Degree in Hygiene (M.H.) and a Diploma (D.P.H.), and every facility is afforded for training in Sanitary Science and State Medicine. The curriculum for the Degree extends over a period of two years, the first of which is devoted to laboratory instruction and practical classes (including those for the Diploma); the second being devoted to advanced study and research. The curriculum for the D.P.H. Examination demands (1) a six months' course of practical instruction in Sanitary Science; (2) a six months' course of laboratory instruction in Chemistry and Bacteriology; and (3) practical instruction in Infectious Diseases. Fees.—Chemistry, £5 5*s.*; Bacteriology, £5 5*s.*; Practical Sanitation, £15; Infectious Diseases, £3 3*s.* The courses may be taken out at any time, and students are allowed to work daily in the laboratories.

The University grants a diploma in Tropical Medicine. The school is affiliated with the University of Liverpool and the Royal Southern Hospital of Liverpool. Three courses of instruction are given every year. Two of these last for three full months and are called respectively the Lent Course, from Jan. 6th to April 5th; and the Autumn Course, from Sept. 15th to Dec. 13th. The Third Course, an Advanced Course, lasts one month, from June 1st to the 30th. The full course consists (1) of a systematic series of lectures on Tropical Medicine and Sanitation delivered by the Professor of Tropical Medicine at the University; (2) of additional lectures on Special African and other Diseases, delivered at the University; (3) of systematic lectures and demonstrations on Tropical Pathology and Parasitology by the Walter Myers Lecturer at the University; (4) of similar instruction on Medical Entomology by the Professor of Economic Entomology at the University; (5) of Practical Work on the Bacteriology of Typhoid, Dysentery, Cholera, Plague, and Malta Fever by the Assistant Lecturer on Tropical Bacteriology; and (6) of clinical lectures and demonstrations delivered at the Royal Southern Hospital by the Physician in Charge of the Tropical Ward, the Professor, and the Walter Myers Lecturer. The instruction given occupies six hours a day for five days a week during the course. Teaching under headings 3, 4, and 5 above is delivered in the laboratory of the school at the University, which contains accommodation for 30 students, with all necessary appurtenances, including a well-equipped museum, a class library, and access to the general departmental library. Teaching under heading 6 is given in the tropical ward and the attached clinical laboratories of the Royal Southern Hospital on two or three afternoons a week. At the end of each full course an examination is held by the University for its diploma of Tropical Medicine (D.T.M.), which is open only to those who have been through the course of instruction of the school. The examination lasts three days and consists (1) of papers on Tropical Medicine, Tropical Pathology, and Tropical Sanitation and Entomology respectively; (2) of a clinical examination; and (3) of an oral examination. The results are declared as soon as possible afterwards. Those who do not wish to undertake the examination are given a certificate of attendance if their attendance has been satisfactory. The advanced course consists entirely of Practical and Clinical Laboratory Work, given at the laboratory at the University. The fee for the full course of instruction is 13 guineas, with an extra charge of 10*s.* 6*d.* for the use of a microscope if required. The fee for the examination is 5 guineas. Applications should be made to the Dean of the Medical Faculty, University of Liverpool, from whom prospectuses may be obtained. Two University Fellowships of £100 a year each are open to students of the school, amongst others. Accommodation for research work is to be had both at the University Laboratory of the school and at its Research Laboratories at Runcorn (16 miles distant from Liverpool). Since it was instituted nine years ago the school has employed 25 different investigators paid out of its funds and has despatched to the tropics 21 scientific expeditions, many of the workers having been taken from among its students. The work done by them has been published in 21 special memoirs with many plates and figures, besides text-books and numerous articles in the scientific press. Since 1906 the memoirs have been succeeded by the "*Annals of Tropical Medicine and Parasitology*," published by the Committee and open to outside contributors (apply to the Secretary, B 10, Exchange buildings, Liverpool) The Mary Kingsley Medal is awarded by the school for distinguished work in connexion with Tropical Medicine, and has been given to Sir David Bruce, Professor Koch, Dr Laveran, Sir Patrick Manson, and others

University of Leeds —The University grants a Diploma in Public Health, and every facility is afforded for training in Sanitary Science and State Medicine The examination, which is held twice in each year—namely, in June and December—is in two parts, and is written, oral, and practical Candidates, before entering for the first part of the examination, must have held for not less than 12 months a registrable qualification in Medicine, Surgery, and Midwifery and must present satisfactory certificates (1) of having attended an approved course of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University, (2) of having attended, after obtaining a registrable qualification, during at least six months practical instruction in laboratories approved by the University, the courses including Chemistry as applied to Public Health Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man, three of these months must be spent in the University in attendance on one of the practical courses Candidates before entering the second part of the examination must present certificates (3) of having, after obtaining a registrable qualification, attended during not less than three months the clinical and administrative practice of a hospital for infectious diseases approved by the University, (4) of having after obtaining a registrable qualification, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under 2), been diligently engaged in acquiring a knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) the medical officer of health of a county or of a single sanitary district having a population of not less than 50 000, or (*b*) a medical officer of health devoting his whole time to Public Health work, or (*c*) a medical officer of health who is also a teacher in the Department of Public Health of a recognised medical school or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps, district, or command recognised for the purpose by the General Medical Council *or* of having attended during three months as required above, and during three months after obtaining a registrable qualification, having attended a course or courses of instruction approved by the University, in subjects bearing on Public Health Administration Candidates may present themselves for Parts I and II separately or at the same time provided that no candidate be allowed to pass in Part II unless he has already passed in Part I No candidate's name will be published until he has satisfied the examiners in both parts of the examination Fees—The fee for each part is £5 5*s*, and must be paid at least 14 days before the commencement of the examination For any subsequent examination in the same part the fee will be £3 3*s* Every candidate who has passed both parts of the examination and who is legally registered will receive a Diploma in Public Health Medical practitioners *registered or entitled to be* [illegible] mpted from [illegible] a Diploma in Public Health for which courses of instruction are given each year These qualify for the Cambridge University Diploma, for that given by the Conjoint Board of England, and for the degree of M D in State Medicine of the University of London

University of Bristol —Diploma in Public Health Candidates must be at least 23 years of age, shall be fully registered medical practitioners of not less than 12 months' standing as such and shall have passed the examination prescribed by regulation The examination is divided into two parts The subjects of the First Part are Chemistry as applied to Public Health and [illegible] Candidates for the First Part [illegible] having obtained a registrable [illegible] practical laboratory instructio [illegible] Bacteriology, and in the Pathology of the Diseases of Animals Transmissible to Man The subjects of the Second Part are Public Health and Epidemiology, Sanitary Law, Vital Statistics, and Sanitary Reporting Candidates for the Second Part shall, during six months after having obtained a registrable qualification, have been diligently engaged in acquiring a practical knowledge of the duties, both routine and special, of public health administration under the supervision of certain persons specified by the General Medical Council, a list of which can be obtained from the prospectus

University of Edinburgh —Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh—viz, Bachelor of Science in Public Health and Doctor of Science in Public Health A Diploma in Tropical Medicine and Hygiene is also granted Candidates for the degree of B Sc in Public Health must be graduates in Medicine of a recognised University, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least 20 hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University, they must also have attended courses of instruction in Physics and Geology in some Scottish University Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than 18 months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of 40 lectures at least, one of which courses shall deal with medicine and the other with engineering, each in its relation to public health They must also give evidence that subsequent to graduation in Medicine, (1) they have during three months, which must be separate and distinct from the period of laboratory instruction, been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) a medical officer of health recognised for this purpose by the General Medical Council, (*b*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council, (2) that they have attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration, and (3) that they have had three months instruction in mensuration and drawing The subjects of examination include Laboratory work Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics Graduates who have held the degree of B Sc in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D Sc in Public Health in that University They must then present a Thesis and pass an examination in Public Health The fees are £3 3*s* for the First and £3 3*s* for the Second B Sc Examinations, and £10 10*s* for the degree of D Sc

University of Aberdeen —The Diploma in Public Health (D P H) is conferred only on graduates in Medicine of a University in the United Kingdom and a period of not less than twelve months must elapse between medical graduation and entrance to the examination for the diploma Every candidate must produce evidence of having attended, after graduation in Medicine during a period of six months, practical instruction in Hygiene and Bacteriology in laboratories approved of by the University, together with having during six months (whereof three months must be distinct from the period of laboratory instruction) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the medical officer of health of a county or large urban district He must have [illegible] months the practice of a hospit [illegible] which opportunities are afforded [illegible] administration He must also have obtained practical instruction in the drawing and interpretation of plans Every candidate who is not a graduate in Medicine of this University must have attended a course of instruction in the University in one or more of the subjects embraced in the examination for the diploma. The diploma is conferred after

Prevention and control of disease. Vaccination and preventive inoculation.

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, the Royal Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have a qualification which has been registered under the Medical Acts. Those qualified before 1890 do not require to produce evidence of attendance on any special courses. All other candidates must have attended, after qualifying, not less than four calendar months for at least 240 hours' practical instruction in Chemistry and Bacteriology in a recognised laboratory or laboratories, must have studied for six months the duties of outdoor sanitary work under the medical officer of health of a county or large urban district or a medical officer of health who is also a teacher of Sanitary Science in a Medical School, or a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps District or command, and evidence of attendances for three months, at least twice weekly, the practice of a Hospital for Infectious Diseases, at which he has received instruction in the methods of administration. There are two examinations, and candidates may enter for both at one period or for either separately. The First Examination includes (*a*) Laboratory Work (Chemistry and Bacteriology), (*b*) Physics and Meteorology; and the Second Examination embraces (*a*) Report on Premises visited, (*b*) Examination at Fever Hospital, (*c*) Examination at Public Abattoir, (*d*) Written and Oral Examinations on Epidemiology and Endemiology, (*e*) Vital Statistics and Sanitary Law, and (*f*) Practical Sanitation. The fee is 12 guineas for both examinations, or 6 guineas for either of them. A fee of 3 guineas is payable by rejected candidates for either examination. The examination is held twice yearly, in May and October. The published regulations provide detailed synopses of the subjects of examination. The Registrar for Edinburgh is Mr. James Robertson, 54, George-square, and for Glasgow Mr. Alexander Duncan, LL.D , 242, St. Vincent-street.

Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland.—Stated examinations for the Diploma in Public Health are held in the months of February, May, July, and November. A special examination for the diploma may, at the discretion of the Committee of Management (except during the months of August and September), be obtained on payment of £15 15*s*, in addition to the ordinary fees mentioned below, and on giving notice at least one fortnight before the date of the proposed examination. Every candidate for the Diploma in Public Health must be a registered medical practitioner. (Candidates registered or entitled to be registered prior to January, 1890, are exempt from the rules as to study.) He must subsequently to qualification (1) receive six months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months practically study outdoor sanitary work under a medical officer of health and shall as an additional requirement attend a hospital for infectious diseases. Candidates are examined on four days, commencing on the first Monday of February, May, and November. Each candidate must return his name to the secretary of the Committee of Management under the Conjoint Scheme two weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. The fee for the examination is £10 10*s*. The examination for the Diploma in Public Health comprises the following subjects:—Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Sanitary Law, and Bacteriology. For further particulars apply to Alfred Miller, Secretary, Committee of Management; Office, Royal College of Surgeons, Dublin.

THE Winter Session at the University of Birmingham will commence on Tuesday, Oct. 7th, when a reception will be held in the Medical Faculty Buildings, and a lecture delivered by Professor Arthur Keith, LL.D., F.R.S., on the Present Problems Relating to the Antiquity of Man. A reception will be held at 7.30 P.M., half an hour before the lecture.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without the special licence; but it is of eminent advantage to take the L.D.S., otherwise few dental appointments at general or special hospitals or dispensaries are available. And, what is still more important, the manual dexterity requisite for the successful practice of dentistry can only be gained by long and careful training; this having been attained, it is but little trouble to pass the special examinations. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course a separate course of Practical Dental Surgery; a course o not less than five lectures on the Surgery of the Mouth Dental Mechanics, one course; a course of Practical Denta Mechanics, including the manufacture and adjustment o six dentures and six crowns; Dental Metallurgy, one course a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than two years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). The Dental Schools in London are the Royal Dental Hospital of London, the National Dental Hospital, Guy's Hospital Dental School, and the London *Hospital Dental* School. Most of the large provincial towns, where there is a medical school, have now dental hospitals. A convenient arrangement by which the M.R.C.S., L R.C.P., and L.D.S. can be taken is as follows:—The Preliminary Examination in General Education having been passed the student should commence his mechanical training at a dental school or with a qualified dentist and register as a dental and medical student. (This instruction, however, may be taken prior to the date of registration as a dental student.) During the mechanical tuition the student should receive instruction in Chemistry and Physics, together with Biology, and should pass the First Professional Examination for the Conjoint Diploma during his first year. He should then obtain instruction in Pharmacy and pass the examination. On the completion of the mechanical training the student should join the general and dental hospitals, pass the First Professional Dental Examination in six months' time, and at the expiration of 18 months at the general hospital should pass the Second Examination for the Conjoint Diploma. The Final Examination for the L.D.S. can be taken at the end of two years from joining the hospital. The student during these two years will have been attending simultaneously both the general and dental hospitals. During the remainder of his time he should devote himself to Surgery, Medicine, Midwifery, &c., in which subjects he may be examined at the expiration of the required time from the passing of the Second Examination. When time is not a great object, a better course is to join only the general hospital at the completion of the mechanical tuition, and complete the Second Examination for the Conjoint Diploma and also his "Dressing" and "Clerking" appointments before commencing his surgical training at the Dental Hospital. The best course, however, is entirely to finish the curriculum for the M.R.C.S. and L.R.C.P. and then take the special Dental work. The regulations for the Dental Licence of the Royal Colleges of Ireland and Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow are very similar to those of the English College. The L.D.S. can also be obtained alone.

The Registration of Dental Students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and *subject* to the same regulations as regards Preliminary Examinations. Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies, including two years' instruction in mechanical dentistry. The two years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no portion of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration

It is necessary for anyone practising Dental Surgery in this country to be on the Register and no foreign qualifications are admitted

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations which apply to all candidates who have registered as dental students after Jan 1st, 1897 Candidates are required to pass three examinations the Preliminary Science Examination the First Professional Examination, and the Second Professional Examination I Preliminary Science Examination —Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry Physics and Practical Chemistry The examination consists of these subjects and is identical with Part I of the First Examination of the Examining Board in England Candidates who commence professional study on or after Oct 1st 1913 must pass the Preliminary Science Examination before commencing the courses required for the Second Professional Examination II The First Professional Examination —The candidate must produce the following certificates 1 Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of mechanical dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the superintendent of the mechanical department of a recognised dental hospital 2 Of registration as a dental student by the General Medical Council 3 Of having attended at a recognised Dental Hospital and School (*a*) a course of Lectures on Dental Metallurgy, (*b*) a course of Practical Dental Metallurgy, (*c*) a course of Lectures on Dental Mechanics, and (*d*) a course of Practical Dental Mechanics including the manufacture and adjustment of six dentures and six crowns Candidates may present themselves for the First Professional Examination on production of the required certificates The Examination consists of Part I (Mechanical Dentistry) and Part II (Dental Metallurgy) the examination in Dental Metallurgy being by written paper The parts may be taken together or separately III The Second Professional Examination —The candidate must produce the following certificates 1 Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student 2 Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology, (*b*) a separate course of Dental Histology, including the preparation of microscopical sections, (*c*) a course of Dental Surgery, (*d*) a separate course of Practical Dental Surgery, (*e*) a course of not less than five lectures on the Surgery of the Mouth which lectures may be given at a dental hospital or at a recognised medical school in the latter case they may form part of the course of lectures on Surgery, (*f*) a course of Dental Materia Medica, and (*g*) a course of Dental Bacteriology (*h*) a course of practical instruction in the administration of such Anæsthetics as are in common use in Dental Surgery 3 Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years 4 Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy, (*b*) a course of lectures on Physiology (*c*) a separate [illegible] lectures o[illegible] The lect[illegible] after the [illegible] and Physiology 5 Of having performed Dissections at a recognised medical school during not less than 12 months 6 Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery for twelve months during the ordinary sessions 7 Of being 21 years of age The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers Candidates may present themselves for the Second Professional Examination after the completion of four years professional study from the date of registration as a dental student and after the lapse of not less than six months from the date of passing the First Professional Examination The Second Professional Examination consists of Part I, General Anatomy and Physiology, General Surgery and Pathology, Part II Dental Anatomy and Physiology, Dental Pathology and Surgery and Practical Dental Surgery The written examination in Part I comprises General Anatomy and Physiology General Pathology and Surgery and in Part II, Dental Anatomy and Physiology and Dental Pathology and Surgery At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries and may be required to prepare and treat teeth by filling with gold or other material by inlaying or by crowning or to do any other operation in Dental Surgery (candidates must provide their own instruments), (*b*) on the Mechanical and Surgical treatment of the various irregularities of Children's Teeth There is also an Oral Examination Candidates may take the two parts of the examination together or separately Candidates must pass Part I before proceeding to Part II If they fail in Part I they are not allowed to proceed with Part II Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom in India or in a British colony Exemption from Examination in Anatomy and [illegible] dates who have passed the [illegible] mining Board in England or [illegible] for any degree or qualifica[illegible] gistrable under the Medical Act of 1886 Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and Universities above mentioned The fee for the diploma is 20 guineas and is payable as follows — Preliminary Science Examination 3 guineas, First Professional Examination 2 guineas Second Professional Examination 5 guineas the balance to be paid on the completion of the Examinations The Preliminary Science Examination is held in January, March or April July and September in each year The First and Second Professional Examinations are held in May and November in each year Candidates must give 21 clear days notice of their intention to present themselves for examination Synopses of examinations and all further information can be obtained from the Secretary, Examination Hall Queen square Bloomsbury

Royal College of Surgeons Edinburgh —For the Licence in Dental Surgery all candidates must pass a Preliminary Examination in General Knowledge and have their names inscribed in the Register of Dental Students of the General Medical Council A copy of regulations giving a list of Preliminary Examinations recognised for obtaining this Licence as well as of the subjects of the Professional Examinations may be obtained from Mr D L Eadie, Clerk to the Royal College of Surgeons at 54, George square Edinburgh Candidates must produce certificates of having subsequently to the date of registration been engaged for four years in professional studies and of three years instruction in Mechanical Dentistry from a registered dental practitioner except in the case of previously registered medical practitioners when two years will be considered sufficient Candidates must have attended the following curriculum Anatomy one course of six months, Practical Anatomy twelve months, Chemistry with Laboratory Instruction one course of six months, Physics, with Laboratory Instruction three months Physiology with Laboratory Instruction one course of six months, Surgery, including Surgical Pathology one course of six months, Medicine, including Medical Pathology, one course of six months, and attendance on the practice of a recognised general hospital with Clinical Instruction on Surgery and Medicine twelve months These courses must have been attended at a University or in an established school of [illegible] ised by the [illegible] In addi[illegible] d to have attended in a recognised dental hospital or with teachers recognised by the College the following special courses of lectures and instruction Dental Anatomy and Physiology (Human and Comparative) (not less than 24 lectures) with Practical Dental Histology three months, Dental Surgery and Pathology (not less than 20 lectures) with the Materia Medica and Therapeutics applicable to Dental Surgery, three months, Dental Mechanics (not less than 12 lectures) Theoretical and Practical with Dental Metallurgy, three months—one course each, two years'

First Professional Examination. Candidates are required to satisfy the examiners in the several subjects of the following examinations: A preliminary examination in Arts; a preliminary examination in Science; the First Professional Examination; and the Final Examination. The classes in the Department of Dentistry will begin on Oct. 1st. The instruction in the Preliminary subjects of Chemistry, Physics, and Biology will be given at the University in College-road. The classes in the other subjects and the systematic courses in Dental subjects will be held in the School of Medicine of the University in Thoresby-place. The systematic instruction in the School of Dentistry will be given by the following:—Anatomy: Professor J. K. Jamieson. Physiology: Professor de B. Birch. Pathology: Professor A. S. Grünbaum. Medicine: Professor T. W. Griffith. Surgery: Professor R. L. Knaggs. Dental Surgery: Mr. A. G. G. Plumley. Operative Dental Surgery: Mr. S. D. Hey. Dental Anatomy and Physiology: Mr. A. Alan Forty. Dental Mechanics: Mr. C. Rippon. Dental Metallurgy: Mr. W. Lowson. Dental Materia Medica: Mr. J. H. Gough. The clinical instruction will be given in the Dental Department of the Leeds Public Dispensary, which is recognised by the University and by the Royal College of Surgeons. Applications for the prospectus should be made to the Academic Sub-Dean of the Faculty of Medicine.

University of Liverpool (*Liverpool Dental Hospital and School of Dental Surgery*).—The University grants a diploma in Dental Surgery (L.D.S.) and degrees in Dental Surgery (B.D.S. and M.D.S.). The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated and the management of the curriculum is in the hands of the Board of Dental Studies. This school offers advantages to students which are not excelled anywhere for their practical nature. The Dental Hospital, covering a site of 672 square yards, was opened in March, 1910, equipped in each department with every modern accessory. The ground floor contains a large waiting-hall, examination room, extraction and anæsthetic rooms, with special waiting and recovery rooms for each, staff room, and special room for nurses. A large lecture hall with library and museum, prosthetic room adjoining a lofty and well-lighted laboratory divided into special rooms to accommodate over 30 pupils, and smaller laboratory for advanced students, plaster and smelting rooms, are situated on the first floor. The whole of the top floor (470 square yards) is devoted to conservation work, and lighted entirely from the north, and contains 50 pump operating chairs, each provided with water-flushed spittoons, brackets, and electric light. Provision is also made for the use of electric motors. Portions are reserved for porcelain inlay work, orthodontia, and the use of the demonstrator. The students' room, with cloak-room and lavatories, is placed in the mezzanine immediately below the conservation (filling) room, and provision is made in the basement for cycles. The whole of the building is heated by hot-water pipes and radiators, and specially ventilated and lighted throughout by electricity. The laboratory is in charge of a skilled dental mechanic under the supervision of the Warden, and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lectures at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes 12 honorary Dental Surgeons, a Demonstrator, six Anæsthetists, two House Surgeons, and a Curator. Fees: The composition fees are as follows: Diploma course (L.D.S.): Composition fee £58 10*s*., for diploma course of other licensing bodies £61 10*s*., payable in two equal instalments, the first on entry, the second 12 months later. Two years' instruction in Mechanical Dentistry (pupilage) and two years' Dental Hospital Practice (combined), £100. Degree course (B.D.S.): £67 10*s*. for all lectures (including Chemistry, Physics, and Zoology) in three instalments. Two years' dental hospital, £21; general hospital practice, £10 10*s*.; three years' mechanical instruction (pupilage), £105. Further information may be had from the Warden, Mr. W. H. Gilmour.

University of Manchester.—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine. This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any other school in the kingdom, and the fullest opportunities for study are offered to students preparing for any of the professional examinations. Instruction adapted to the requirements of students preparing for the B.D.S. Degree and the Dental Diplomas of the University, the Royal College of Surgeons of England, and of other licensing bodies is given during the Winter and Summer Sessions both at the University and at the Dental Hospital of Manchester in Oxford-street. The required general hospital practice is taken at the Manchester Royal Infirmary. Women students are admitted to the classes in the Dental Department, and for them a separate laboratory for Practical Anatomy and common rooms are provided. The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the University Diploma in Dentistry is 55 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the L.D.S. of England is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. Students who have already served their apprenticeship with a private practitioner, and who propose to complete the final portion of their attendance at the University and at an approved dental hospital, will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship. The payment of any of the above composition fees will entitle the student to attend all the classes in the following list which are required for their respective examinations. The composition fee does not include the hospital fees, the examination fees, the fee for the conferment of the degree or the diploma, the registration fee, nor the fees for chemicals and chemical apparatus (£1 1*s*.).

National University of Ireland.—This University grants the degrees of Bachelor of Dental Surgery and a degree of Master of Dental Surgery. A student may not be admitted to the Degree of Bachelor of Dental Surgery unless a period of not less than four years shall have elapsed from the date of his matriculation, during which period he must have pursued an approved course of study of not less than nine terms. For the degree of Bachelor of Dental Surgery candidates must pass four examinations, the first two being the same as those for the first and second examination in Medicine. The subjects of the third examination are Dental and Practical Pathology, Dental Surgery, and Dental Medicine, the subjects of the fourth being Dental Surgery and Pathology, Dental Mechanics, Operative Dentistry, Orthodontia, and Dental Materia Medica. A candidate for the degree of B.D.S. must produce evidence of apprenticeship to a registered dentist for a period of two years. A portion of or the entire period may be served before commencing study for the degree of B.D.S., but no portion so taken prior to commencement of study shall count as part of the four years of Dental Study. The degree of Master of Dental Surgery will not be granted until three years after the B.D.S. has been obtained.

TEACHING INSTITUTIONS IN DENTISTRY.

See also under Universities of Birmingham, Leeds, Liverpool, and Manchester above.

LONDON.

Royal Dental Hospital of London, School of Dental Surgery, Leicester-square.—A school of the University of London.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 5 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the training in dental mechanics recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The five house surgeoncies are held for six months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the laboratory. There are two Entrance Scholarships in Chemistry and Physics of the value of £50 and £25 respectively. One Entrance

Scholarship in Dental Mechanics and Metallurgy value £25, open to pupils of the Hospital only. One Entrance Scholarship of £25 in Dental Mechanics, open to pupils of private practitioners. The Saunders Scholarship of £20 awarded to second year students. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. The Alfred Woodhouse Scholarship of £35 and the Robert Woodhouse Prize of £10 for Practical Dental Surgery. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses, at the end of the summer and winter sessions. Consulting Physician: Sir Richard Douglas Powell, Bart. Consulting Surgeon: Sir Frederick Treves, Bart. Consulting Dental Surgeons: Mr. Morton Smale and Mr. C. S. Tomes, F.R.S. Dental Surgeons: Mr. J. F. Colyer, Mr. W. H. Dolamore, Mr. J. G. Turner, Mr. N. G. Bennett, Mr. D. P. Gabell, Mr. A. Hopewell-Smith, and Mr. H. Austen. Assistant Dental Surgeons: Mr. R. McKay, Mr. W. W. James, Mr. F. Coleman, and Mr. Landon Whitehouse. Anæsthetists: Dr. Dudley Buxton, Dr. R. J. Probyn-Williams, and Mr. H. Hilliard. Demonstrators: Mr. A. T. Pitts, Mr. H. Stobie, Mr. R. M. Fickling, Mr. W. D. Southern, Mr. J. F. Gow, and Mr. G. J. Harborow. Lecturers:—Dental Anatomy and Physiology (Human and Comparative): Mr. A. Hopewell-Smith. Dental Surgery and Pathology: Mr. J. G. Turner. Operative Dental Surgery: Mr. W. H. Dolamore. Dental Mechanics: Mr. D. P. Gabell. Metallurgy in its application to Dental Purposes: Mr. P. A. Ellis Richards. Dental Bacteriology: Dr. W. J. Penfold. Dental Materia Medica: Mr. F. Coleman. Chemistry: Mr. P. A. Ellis Richards. Physics: Mr. John A. Carpenter. Anæsthetics: Dr. Dudley Buxton. During the sessions the surgeons of the day will give demonstrations at stated hours. The house surgeons attend daily while the hospital is open. Fee for two years' hospital practice required by the curriculum, including lectures, £53 3*s.* in one payment, or £55 13*s.* in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £60. Both hospitals can be attended simultaneously. For the lectures in Chemistry and Physics for the Preliminary Science Examination £10 10*s.* The fee for the instruction in Dental Mechanics and the two years' hospital practice required by the curriculum is £150 if paid in one instalment, or 150 guineas if paid in three equal instalments. The fee for tuition in Dental Mechanics is 50 guineas per annum; for one year's hospital practice £21. The Dean attends at the hospital every Thursday morning from 9.45 to 11 o'clock, or he can be seen at other times by appointment. Letters to be addressed—The Dean, 32, Leicester-square. The Winter Session opens on Oct. 1st.

National Dental Hospital and College.—Corner of Great Portland and Devonshire-streets, W.—Consulting Surgeon: Sir Victor Horsley. Consulting Dental Surgeon: Mr. Sidney Spokes. Dental Surgeons: Mr. K. W. Goadby, Mr. H. R. Pring, Mr. A. E. Relph, Mr. H. Creemer Cooper, Mr. H. W. Turner, Mr. F. St. J. Steadman, and Mr. F. R. Smyth. Assistant Dental Surgeons: Mr. Arthur E. Ironside and Mr. F. E. Sprawson. Anæsthetists: Mr. H. P. Noble, Mr. C. J. Ogle, Mr. Vivian B. Orr, Dr. J. Maughan, Mr. P. H. Parsons, and Mr. R. E. Delbruck. Lecturers:—Dental Anatomy and Physiology: Dr. J. W. Pare, Tuesdays and Thursdays, 5 P.M., in October, November, and December. Dental Metallurgy: Tuesdays, 5 P.M., in January, February, and March, and May, June, and July. Dental Mechanics: Mr. S. Holloway Olver, Wednesdays, 5.30 P.M., in May, June, and July, and October, November, and December. Operative Dental Surgery: Mr. A. E. Relph, Thursdays in January, February, and March. Dental Materia Medica: Mr. F. R Smyth, Tuesdays, 6 P.M., October, November, and December. Dental Surgery and Pathology: Mr. H. J. Relph, Thursdays, 5 P.M., during January, February, and March. Bacteriology of the Mouth: Mr. K. W. Goadby, Tuesdays, 4 P.M., during May, June, and July. Practical courses to comply with the R.C.S. curriculum are also held. The hospital is lighted throughout by electricity and warmed and ventilated by approved methods. Clinical Lectures and Demonstrations are given from time to time, and each student on entering passes through a preliminary course under a demonstrator. The stopping rooms have accommodation for 50 chairs. Dresserships in the extraction and stopping rooms are re-arranged every three months. Two Entrance Exhibitions, of the value of £40 and £20, are open for competition. Prizes are open for competition at the end of each course of lectures. Certificates of honour are also open in each class. The Rymer-Medal for General Proficiency, value £5, is awarded annually to the most meritorious student; and the Ash Prize, value £3 3*s.*, for a Thesis on a subject in Dental Surgery. Total fee for the Lectures and Hospital Practice required is £40. A composition fee covering the two years' mechanical pupilage and the two years' dental hospital practice required by the Royal [illegible]

Information respecting the Hospital Practice and the College may be obtained from the Dean, Mr. Sidney Spokes, who attends at the Hospital, Great Portland-street, on Tuesday mornings.

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. The Extraction Rooms: A new Dental Out-patient Department has been provided. There is ample accommodation for ordinary extractions and anæsthetic extractions, together with waiting- and retiring-rooms. Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the dental house surgeon, the assistant dental house surgeon, and the dressers. Such patients as are suitable for conservative treatment are transferred to the conservation room, taking with them a chart to indicate the treatment required. The Conservation Room: This room is open from 9 A.M. till 5 P.M. It has recently been entirely remodelled and and greatly enlarged, giving a floor space of over 6000 square feet. It affords accommodation for upwards of 100 dental chairs, with the necessary equipment of the most modern type, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Laboratory. The Probationers' Laboratory is supervised by two of the staff demonstrators, and instruction is given in operative dentistry on a "mannikin" to students during their first three months of study. Pupils in Dental Mechanics are received, and a graded, systematic, and full course of instruction, extending over two years, is carried out. The control and supervision of the Pupils' Laboratory is in the hands of the following staff: The Demonstrator of Dental Mechanics, Two Staff Demonstrators of Prosthetic Dentistry, Two Skilled Mechanics and their Assistants. Dental students have the opportunity of attending at this hospital the whole course of instruction [illegible] courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Four Entrance Scholarships in Dental Mechanics of the value of £20 each are offered for competition annually, two in September and two in April, and prizes of the aggregate value of £47 are awarded for general proficiency and for skill in Practical Dentistry. A Dental Travelling Scholarship of the value of £100 is awarded every second year. Dental students are eligible for admission to the Residential College and enjoy the privileges of students in the Medical School. Staff.—Consulting Dental Surgeons: Mr. F. Newland-Pedley and Mr. W. A. Maggs. Dental Surgeons: Mr. Wynne Rouw, Mr. H. L. Pillin, Mr. M. F. Hopson, and Mr. J. B. Parfitt. Assistant Dental Surgeons: Mr. J. Lewin Payne, Mr. E. B. Dowsett, Mr. F. J. Pearce, and Mr. H. P. Aubrey. *Demonstrators of Practical Dentistry*: Mr. H. C. Malleson, Mr F. N. Doubleday, Mr. W. A. Hodgson, Mr. W. S. Stranach, and Mr. E. A. Tomes. Demonstrator of Orthodontic Dentistry: Mr. F. Bocquet Bull. Demonstrators of Prosthetic Dentistry: Mr. W. H. Wotton and Mr. G. B Pritchard. Anæsthetists: Mr. C. J. Ogle, Dr. F. E. Shipway, Mr. H. M. Page, H. T. Depree, minimum cost of classes and Diploma for the whole course of dental instruction amounts to £90 7*s*. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow is recommended. The minimum cost of Professional Education, the Triple Qualification, and the Licence in Dental Surgery amounts to £169 7*s*. The mechanical department is large and airy and furnished with all modern tools and appliances. The Museum is open to students for study. Further particulars can be obtained from the Dean, Mr. W. Guy.

Incorporated Glasgow Dental Hospital and School, 158, Renfrew-street and 15, Dalhousie-street, Garnethill, Glasgow.—The winter session will begin in October and the lectures will be delivered as follows. In Dental Mechanics on Tuesday and Thursday at 7 P.M., by Dr. Hugh McKay, and in Dental Metallurgy on Monday and Wednesday at 7, by Mr. W. Bruce Hepburn, L.D.S. Fee for each of the above courses of lectures, £3 3*s*. Lectures will also be delivered on the following subjects: Dental Surgery and Pathology, by Mr. J. Mason Noble; Dental Anatomy and Physiology, by Dr. W. Wallace; Dental Bacteriology, by Mr. J. F. Webster; Anæsthetics, by Dr. R. Home Henderson; Operative Technique, by Mr. Adam Cubie. The lectures and instruction at the Glasgow Dental Hospital and School are recognised by all the licensing bodies in the United Kingdom. The fees for two years' hospital practice are £15 15*s*. Intending students before commencing to attend the lectures or hospital practice must produce evidence of having passed the preliminary examination prescribed by the regulations of the General Medical Council for registration of dental students. The hospital is opened daily from 5 to 7 P.M. (Saturdays excepted). Students may only enrol during the months of April or October. Summer session begins in April. Winter session begins in October.

Glasgow Royal Infirmary (Dental Department).—Mr. W. Taylor attends at the Royal Infirmary at 3.30 P.M. on Mondays, Wednesdays, and Fridays, and gives a course of instruction in Dental Surgery on these days. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry with Metallurgy, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital.

IRELAND.

Incorporated Dental Hospital of Ireland, Lincoln place, Dublin.—The Dental School connected with this Hospital has been in existence since the year 1882. There is ample accommodation for pupils (26 benches) in the Prosthetic Laboratory, under the charge of the chief of the department and a mechanical tutor. Students are assisted in their Dental Hospital Practice by special instructors, the house surgeons, and members of the honorary visiting staff. The Dental Lectures necessary for the L.D S. diploma are given in the hospital. There is a special course of Practical Anæsthetics. The hospital year begins on the first Monday in October, which is the best time for students to enter.

Fees.—Dental Hospital Practice (each year), £12 12*s*. Dental Lectures (each year), £6 6*s*. Composition fee (for both) (each year), £15 15*s*. *Six months Dental Hospital Practice, £5 5*s*. *Three months Dental Hospital Practice, £3 3*s*. In addition to these courses Registered Dentists, who are members of the British Dental Association, will usually be permitted to take out a three months' course for a fee of 6 guineas. Laboratory for Dental Prosthesis.—Students may take a course of tuition in Dental Prosthesis, which is accepted by the various licensing bodies as equivalent to Mechanical Pupilage with a Dentist. Each student pays a fee of £100 on joining the Laboratory for the usual term of two years, or £105 in two sums—viz., £60 on entrance and £45 at the beginning of the second year. Registered Dental Students, who have completed pupilage elsewhere, on recommendation of the Committee of Management, are allowed to take out one year's instruction in the Laboratory for a fee of £60.

Staff —Dentists: Dr. A. W. W. Baker, Dr. George Wyclif Yeates, Mr. George M. P. Murray, Mr. Shenstone J. Bishop, Dr. George P. Moore, Mr. G. J. Goldie, Mr. Murray F. Thomson, and Dr. W. G. T. Story. Assistant Dentists: Mr. J. Stanton, Mr. F. H. G. Pakenham, Mr. H. Winder, Mr. J. Cockburn, Mr. D. L. Rogers, Mr. Edward Sheridan, Mr. George Sheppard, Mr. E. T. Pasley, Mr. W. Matthews, Mr. J. Walker, and Mr. J. Smith. Extra Assistant Dentists: Mr. J. V. Byrne, Mr. J. E. Hogan, Mr. C. H. Hyland, Mr. J. I. Kelly, Mr. A. K. MacDonald, Mr. A. R. Mallett, Mr. L. J. Smyth, and Mr. F. C. Warren. Orthodontist: Dr. G. P. Moore. Assistant Orthodontist: Mr. E. S. Friel. House Surgeon: Mr. A. A. Campbell. Assistant House Surgeon: Mr. W. P. Bole. Chief of Prosthetic Department: Mr. J. Cockburn. Prosthetic House Surgeon: Mr. H. F. Holmes. Instructors in Operative Dentistry: Mr. J. E. Hogan and Mr. Norman Stewart. Dean: Mr. George Sheppard. Further particulars can be obtained from the Dean, Mr. George Sheppard, F.R.C.S.I., L.D.S. Eng.

ANCILLARY SCIENTIFIC INSTITUTIONS.

Imperial College of Science and Technology, London (including as integral parts the Royal College of Sciences, the Royal School of Mines, and the City and Guilds (Engineering) College).—Mechanics and Mathematics: Professor A. R. Forsyth, F.R.S.; Assistant Professors: A. R. Richardson, B Sc., and H. *Klugh, B.A.* Biology: Zoology, Professor E. W. MacBride, F.R.S.; Entomology, H. Maxwell Lefroy, M.A., F.L.S.; Plant Physiology and Pathology, Professor J. B. Farmer, M.A., F.R.S.; Botany, Professor V. H. Blackman, M.A., Sc.D., F.R.S.; Technology of Woods and Fibres, Professor Percy Groom, M.A., D.Sc. Chemistry:, Professor H. Brereton Baker, F.R.S.; Assistant Professors: M. O. Forster, F.R.S., J. C. Philip, M.A., Ph.D., D.Sc., and B. M. Jones, M.A. Chemical Technology (Fuel and Refractory Materials): Professor W. A. Bone, F.R.S. Physics: Professors H. L. Callendar, F.R.S., and the Honourable R. J. Strutt, F.R.S.; Assistant Professors: W. Watson, F.R.S., A. Fowler, F.R.S., and Dr. S. W. J. Smith. Geology: Professor W. W. Watts, F.R.S.; Assistant Professor: Dr. Cullis. Metallurgy: Professors W. Gowland, F.R.S., and H. C. H. Carpenter, M.A., Ph.D.; Assistant Professor: W. H. Merrett, A.R.S.M., F.I.C., M I.M.M. Mining: Professor W. Frecheville, A.R.S.M., M.I.M.M.; Assistant Professors: L. H. Cooke, A.R.S.M., M.I.M.M., and S. J. Truscott, A.R.S.M., M.I.M.M. Civil Engineering: Professor S. M. Dixon, M.A., M.Inst.C.E. Mechanical Engineering and Motive Power: Professor W. E. Dalby, M.A, F.R.S.; Assistant Professors: W. Hewson, A.R.C.S., B.Sc., A.M.Inst.C.E., A. J. Margetson, M.Sc., A. Cruickshank, and E. F. D. Mitchell, A.C.G.I., B Sc. Electrical Engineering: Professor T. Mather, F.R.S.; Assistant Professor: G. W. O. Howe, Wh.Sc., M.Sc. The College reopens on Tuesday, Oct. 7th, 1913. Communications should be addressed to the Secretary, Imperial College, South Kensington, S.W.

Electrical Standardizing, Testing, and Training Institution, Faraday House, 62–70, Southampton-row, W.C. —Principal, Alexander Russell, M.A. Cantab, D.Sc. Glasg., M.I.E.E. Instructor in Electrical Machine Design: F. T. Chapman, B.Sc., A.M.Inst.C.E. Instructor in Chemistry: J. Thomas, B.Sc. Lond. Instructor in Mechanical Engineering: Walter H. Bell, A.M.Inst.C.E. This Institution provides a complete education in mechanical and electrical engineering, including a practical training in works and factories associated with the College for the purpose. The full diploma course occupies four years, but special courses can be arranged. There are Entrance Scholarships of the value of 150 and 100 guineas. Particulars may be obtained on application to the Secretary, Faraday House, Southampton-row, W.C. Session begins Sept. 22nd.

School of the Pharmaceutical Society of Great Britain.—In order to qualify as a pharmacist in Great Britain it is necessary to be 21 years of age, to have passed an approved preliminary examination, to have been for three years practically engaged in the translation and dispensing of prescriptions, and to have passed the Minor examination of the Pharmaceutical Society. The subjects which must

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* Courses marked thus are only for Surgeons intending to practise in the Colonies or remote country districts, or in the Army or Navy; or for Medical Students who have passed their half.

be included in the approved preliminary examination are English, Latin, a modern foreign language arithmetic, algebra, and Euclid No certificate can be accepted unless it has been granted for the whole of these subjects To become eligible to enter for the Minor examination the can
n "apprentice or student,"
cured through the Registrar
to whom a certificate of
the preliminary examination must be sent The subjects of the Minor examinations are botany, chemistry and physics practical chemistry, materia medica, pharmacy, practical pharmacy and dispensing, and prescription reading The fee for the examination is 10 guineas, but a candidate who has attended and failed to pass may re enter for the exami nation on payment of a reduced fee of 3 guineas Persons who pass this examination are registered as chemists and druggists The advanced or Major examination entitles those who pass it to registration as "pharmaceutical chemists" The subjects of the examination are botany, chemistry and physics, practical chemistry, and materia medica, and the entrance fee is 3 guineas *Lecturers* — Chemistry and Physics Professor Arthur W Crossley, F R S Botany Mr C H Warner, B Sc Pharmaceutics Professor Greenish The session commences on Wednesday, Oct 1st, on which day the inaugural address will be delivered Medical students or pupils intending to enter the medical profession, are admitted to the lectures and laboratory work in any or all the courses Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges Application for admission to the school, or for further information, may be made to the Dean, Professor Greenish, 17, Bloomsbury square, London, W C

ROYAL SANITARY INSTITUTE (WITH WHICH IS INCORPORATED THE PARKES MUSEUM) 90 Buckingham Palace road, S W —The objects of the Royal Sanitary Institute are to promote the advancement of sanitary science in all or any of its branches and to diffuse knowledge relating thereto It was founded in 1876 and incorporated in 1888 Sessional meetings are held in London and in various provincial centres from time to time for the reading of papers and for discussions upon subjects connected with sanitary science, and lectures and demonstrations are arranged for sanitary officers, for army officers and professional men on food and meat inspection, for meat inspectors, for women health visitors and school nurses, and for school teachers Examinations are held in London, and in provincial and colonial centres and certificates of competency in sanitary knowledge are granted The Parkes Museum, which is maintained by the institute, contains a great variety of the most approved forms of apparatus and appliances relating to health and domestic comfort Professors and teachers of hygiene are allowed the use of the museum for demonstrations to their students on application to the committee The museum is open daily free of charge from 9 30 A M to 5 30 P M and on Mondays to 8 P M There are also a large library of sanitary literature which contains, in addition to standard works on sanitary science, a collection of reports of medical officers of health over the whole country, and a reading room supplied with the principal sanitary periodicals, both home and foreign The Institute is under the patronage of the King, and the officers are President, the Earl of Plymouth, chairman of council, Sir Henry Tanner, C B, I S O, F R I B A, treasurer, Colonel J Lane Notter R A M C, M A, M D; registrar, Mr A Wynter Blyth M R C S, and secretary and director, Mr E White Wallis, F S S The lecturers are Dr A Wellesley Harris, Dr A Greenwood, Professor H R Kenwood M B, Mr J F Osborne Smith F R I B A, Mr Alan E Munby, A R I B A, Mr W C Tyndale, M Inst C E, Mr A Saxon Snell, A R I B A, Mr Edward Willis, A M Inst C E, Mr Henry C Adams, A M Inst C E, Mr T Dunlop Young M R C V S Mr J Hayhurst, M R C V S, Mr W Hunting, M R C V S, Dr A R Littlejohn, Dr Eric C Pritchard, Dr A Beresford Kingsford Dr James Kerr, Colonel J Lane Notter, R A M C, Dr E H T Nash, and Miss Constance Barker For members the annual subscription is £2 2*s* and for associates £1 1*s*, but members and associates holding certain qualifications only pay half the ordinary rate of subscription

THE ROYAL INSTITUTE OF PUBLIC HEALTH —The Royal Institute of Public Health, 37, Russell square, W C, was founded in the year 1886 with the object of obtaining the registration of public health diplomas and the further statutory requirement that all medical officers of health should possess such a qualification In 1905 the Fellows and members of the Institute, now numbering 2000, decided to create a central public health institution in London and have erected bacteriological, serological, and chemical laboratories in which researches of a public health character are undertaken for municipal and other authorities and for private medical practitioners and the necessary training for obtaining public health diplomas is provided, together with a library, museum, lecture room, and common room The Royal Institute of Public Health is recognised by the University of London as a public educational institution, and its course of instruction for the diploma by the universities and other examining bodies of the United Kingdom The council appointed four medical practitioners yearly who possess a Diploma in Public Health as Assistant Demonstrators, and who are desirous of obtaining a more extended knowledge of laboratory work in connexion with the duties of a medical officer of health The Royal Institute of Public Health is a recognised place of research in connexion with the Beit Memorial Fellowships for Medical Research The Institute is under the patronage of His Majesty the King, and the Right Hon the Earl Beauchamp, K C M G, is President The teaching staff consists of—the Principal, Professor William R Smith, M D, F R S Ed, demonstrators of chemistry, Ernest Garratt, M Sc, and Alan Stewart, D Sc, demonstrator of bacteriology, Dr A Distaso Occasional lectures are given by eminent sanitarians The
Journal of State Medicine,
preventive medicine in
e published in French,
ig scientists in all parts
for 1913 was Professor
rben lecturer for 1914
(Paris) The Annual
Congress of the Institute was held in Paris in 1913 and will be held in Edinburgh in 1914 Secretary Ernest L Ryley.

INTERNATIONAL CONFERENCE ON CANCER RESEARCH

THE Third International Conference on Cancer Research was held in Brussels from August 1st to 5th, Professor DEBAISIEUX (Louvain) being in the chair

Dr CZERNY (Heidelberg) read a paper in the course of which he said that even the most extensive operations, carried to the limits of what was anatomically permissible, succeeded in producing recoveries in only about one fourth of the cases, and that in the remaining three fourths of the cases there were relapses of the disease

Dr WITZEL (Dusseldorf) said that there was a hope of better results in the future from the close connexion of surgery with radiotherapy The large doses with which
therapeutic suc
cases could be
not anticipate
tion treatment
the urinary bl
ment of oblique fistulæ leaden tubes with radiation apparatus could be introduced and in the intervals of the treatment these tubes could be replaced by drainage or obturator tubes In the case of somewhat large tumours the same end would be attained by the making of numerous channels The methods formerly used for preliminary and palliative treatment would, therefore with a little alteration, be applicable to radiotherapy

Dr A PINKUSS (Berlin), Dr GAUSS (Freiburg) and Dr KLOTZ (Tubingen) expressed the opinion that in order to practise radiotherapy it was necessary not only to have in one s possession a certain amount of radio active substances, but also to be thoroughly acquainted with the nature of radio-active substances and with the methods of filtering their emanations so as to administer the quantity appropriate for each individual case and to avoid the dangers associated with radio active treatment The direct application of radium and mesothorium must in many instances be combined with the internal administration of chemical remedies Dr Pinkuss believed that a heightening of the

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[1] A full report of the proceedings appears in our excellent contemporary the Deutsche Medizinische Wochenschrift of August 21st, 1913.

effect was obtained by the simultaneous use of thorium and atoxyl, while Dr. Klotz thought that electrocobalt might be advantageous.

Dr. DE NOBELE (Ghent) presented a report on a new method devised by Dr. Danne, of Paris, for the concentrated application of radium emanation to tumours. By means of liquid air quantities of emanation, equivalent to several centigrammes of radium bromide, were brought into a form so concentrated that they could be enclosed in small capillary tubes or deposited on the points of fine needles, and in that form introduced into the tumours.

Dr. JACOBS (Brussels) deprecated overhasty conclusions as to the merits or inefficiency of new methods, and described his experiences with the radiation treatment of cancer of the breast, the uterus, the intestine, and the skin.

Dr. STEINHAUS (Brussels) said that from his observations on normal tissues and tumours of varying origin treated with the Roentgen rays, observations which he had made both on the living and on the dead subject, he had come to the conclusion that normal cells were very sensitive to the Roentgen rays if the cells were in process of division. What was true for normal tissues was also true for tumours due to overgrowth of their cells; only in the tumours the energy of the proliferation of the cells was increased in comparison with that of the corresponding normal tissues, and their sensitiveness to the Roentgen rays was greater. There could be no question as to the specific action of the Roentgen rays on the cells of tumours.

Dr. CASPARI (Berlin), Dr. DAELS (Ghent), Dr. COLEY (New York), Dr. MATAGNE (Brussels), and Dr. WITZEL discussed the chemical treatment of cancer.

Dr. ODIER (Geneva), Dr. DAELS, Dr. PINKUSS, and Dr. FIQUERA (Rome) discussed the vaccine treatment of malignant tumours. They said that the old method of using the expressed juice of fresh tumours was now abandoned and that its place was taken with apparently better results by autolysed extracts of tumours which were prepared sometimes from the patient's own tumour and sometimes from one of the same kind on another person. Often after the insertion of this inoculation material, which had been called a vaccine, a diminution in the size of the tumour and many times even a complete disappearance of it were observed. Success was not, however, of such regularity that a scientific theory could be based upon it. Several speakers said that a combination of vaccine treatment with other methods, especially with radiotherapy, was desirable.

Dr. FREUND (Vienna) developed new fundamental principles for the treatment of carcinoma. Speaking of the substances which had proved themselves to be destroyers of carcinoma cells in the reaction method worked out in association with Kaminer, he said that while he was trying to make them therapeutically available he found that these substances which had been derived from normal serum were "paralysed" by the substances derived from the serum of a cancer patient. The cancer patient's intestine was the place of formation of these antibodies, and on that account there was an anomaly in the decomposition of the substance. It was a degeneration of the euglobulin, and differed from normal nucleoglobulin in containing a larger proportion of carbohydrates and fatty acids.

Dr. KORENTSCHEVSKI (St. Petersburg) spoke on the subject of the connexion between glands having an internal secretion and the formation of tumours. He gave an extensive review of the literature of the question and described his experiments on the influence of castration and thyroidectomy on the growth of tumours in dogs.

Dr. MARSH (Buffalo) showed preparations of endemic cancer of the thyroid body in salmonidæ.

Dr. VON WASIELEWSKI (Heidelberg) presented a report on an adenopapilloma which had been caused by dispharagus in poultry.

Dr. PETROW (St. Petersburg) presented a report upon a sarcoma of the mesentery of the rat with multiple metastases in the small intestine.

Dr. FIRKET (Liège), Dr. ERNST (Copenhagen), Dr. KOLB (Munich), and Dr. WEINBERG (Stuttgart) supplied statistical contributions. Dr. Ernst reported briefly that according to his investigations there were 7 cases of cancer in the Faroe Islands among 18,000 inhabitants, and 23 cases in Iceland among 83,000 inhabitants. The contemplated inquiry as to the occurrence of cancer in Greenland would occupy several years on account of the geographical difficulties; according to Danish literature the disease certainly occurred there.

The question of the care of cancer patients was discussed by Dr. BLUMENTHAL (Berlin), Dr. SOLÉ (Brussels), and Dr. WEINBERG, and the training of a special nursing staff for cancer patients was mentioned by Dr. MEYER and Dr. PINKUSS (Berlin).

The next conference will take place in Copenhagen in 1916.

Correspondence.

"Audi alteram partem."

THE NATURE OF ANAPHYLAXIS.

To the Editor of THE LANCET.

SIR,—A summary of a paper read by me on "The Nature of Anaphylaxis" at the meeting of the British Medical Association at Brighton was published in THE LANCET of August 9th. I am represented by your reporter as attributing the anaphylactic shock to mechanical irritation produced by an alteration in surface tension, due to beginning precipitation from the interaction of the antibody and antigen. On the contrary, I brought forward evidence against this view. In our paper Dr. Thiele and I gave a rational explanation of the anaphylactic phenomenon. The conclusions we made from our experimental work were that:—

1. The toxic substance causing anaphylactic shock is a degradation body of protein.
2. This toxic degradation substance is produced by the fermentative action of antibodies on a foreign protein.
3. The ferments which perform this action are the well-known antibodies, amboceptor, &c.
4. The anaphylactic shock can always be produced if sufficient antibody be present; and excess of antibody does not protect against the shock if sufficient of the foreign protein be given.
5. These toxic degradation bodies are present in the blood and effusions of animals dying from all bacterial toxæmias or septicæmias, and are the cause of the death.
6. There is no evidence that bacteria exert their toxic effects by means of specific toxic endotoxin. The toxic symptoms produced by bacteria are due to a liberation from the bacteria of protein degradation bodies by the antibodies; the unaltered bacterial protoplasm is not toxic.
7. The so-called endotoxin of previous observers is either: bacterial protoplasm highly disintegrated, and so in an ideal state for the rapid action of a proteolytic ferment, and thus for the production of toxic proteid degradation bodies; or bacterial protoplasm, which has been acted upon by its autolytic ferments or by chemical hydrolytic agents, and is thus in a state of proteid degradation, and so toxic.
8. Immunity is only relative, and the hypersensitive state is a stage in the production of immunity.

I am, Sir, yours faithfully,
DENNIS EMBLETON, M.B.

The Bacteriological Laboratories, University College Hospital
Medical School, August 22nd, 1913.

THE TREATMENT OF EMPYEMA.

To the Editor of THE LANCET.

SIR,—Referring to your article in the issue of THE LANCET of August 23rd on this subject, the statement that children usually do well for a week or so after the operation, but frequently then have a rise of temperature and do badly, will be confirmed by most clinicians. When this occurs I am in the habit of having the discharge again cultivated, and almost invariably a secondary infection of some other organism besides the pneumococcus is found. I believe if every step were taken to avoid this event, more lives would be saved in this way than any other.

I am, Sir, yours faithfully,
SHEFFIELD NEAVE,
Physician, Queen's Hospital for Children.
Harley-street, W., August 25th, 1913.

BIRTHS.

GRUNBAUM.—On August 25th, at St. Helens, Adel, to Dr. and Mrs. Grunbaum, a son.

MARRIAGES.

KERR—DEAN.—On August 20th, at St. George's Church, Jesmond, Harold Kerr, M.D., D.P.H., Medical Officer of Health, Newcastle-upon-Tyne, to Elsie, daughter of Mr. and Mrs. Frank Dean, of Mitchell-avenue, Jesmond, Newcastle-upon-Tyne.

Medical News.

OPENING OF THE MEDICAL SCHOOLS.—Sir William Osler, Bart., Regius Professor of Medicine at Oxford, will distribute the prizes and deliver the opening address at St. George's Hospital Medical School on Wednesday, Oct. 1st, at 3 P.M. The annual dinner will be held in the evening at Prince's Restaurant, when Mr. W. Adams Frost will preside.—The annual Old Students' Dinner of St. Bartholomew's Hospital will be held in the Great Hall of the hospital on Wednesday, Oct. 1st, at 6 30 for 7 P.M., Dr. Howard H. Tooth in the chair. The honorary secretary of the dinner is Mr. H. J. Waring, 37, Wimpole-street, W.—The annual old students' dinner of St. Thomas's Hospital will be held at the Hotel Cecil on Wednesday, Oct. 1st, at 7 for 7.30 P.M., Dr. H. P. Hawkins presiding.—At St. Mary's Hospital Medical School the prizes and awards for 1912–13 will be presented and an address given by Sir John Prescott Hewett, K.C.S.I., on Oct. 1st, at 3.30 P.M. The annual dinner of past and present students will be held at Prince's Restaurant on Oct. 7th, at 7 P.M.—The winter session at the Middlesex Hospital Medical School will open on Wednesday, Oct. 1st, at 3 P.M. The introductory address will be delivered by Mr. W. Sampson Handley, after which the prizes will be distributed by Sir Squire Bancroft. The annual dinner will be held at 7 o'clock the same evening at the Trocadéro, when Sir James Kingston Fowler, K.C.V.O., will preside.—The annual dinner of the Westminster Hospital Medical School will take place on Thursday, Oct. 2nd, at the Imperial Restaurant, Regent-street, W. The honorary secretary of the dinner is Dr. Stanley Dodd, 11, Wimpole-street, W.—At the London School of Medicine for Women Surgeon-General *Sir Charles Pardey Lukis, K.C.S.I., will deliver the inaugural* address on Oct. 1st, at 4 P.M.

ROYAL INSTITUTE OF PUBLIC HEALTH: A COURSE FOR TUBERCULOSIS OFFICERS.—A course of lectures for general practitioners, and especially for candidates as tuberculosis officers, has been arranged for the session of the Institute commencing Friday, Oct. 10th, at 5 P.M. The introductory lecture will be delivered by Professor G. Sims Woodhead, M.D. Lecture II. will be given by Dr. Charles Porter, barrister-at law, medical officer of health the Borough of St. Marylebone, who will discuss the Problem of Tuberculosis in Relation to Insurance and Public Health. In the third lecture Professor G. Sims Woodhead will lecture on the Spread of Tuberculosis, the sources of infection, the modes of entrance, and local and personal considerations. Dr. J. Edward Squire, medical officer to the London Insurance Committee, will lecture on Diagnosis; Dr. T. N. Kelynack, on Tuberculosis in Childhood; Dr. Cecil Wall on General Treatment; Dr. Clive Riviere on Specific Treatment, the Use of Tuberculin, &c.; Dr. T. D. Lister on Sanatorium Treatment; Dr. Alfred Greenwood, chief tuberculosis officer for Kent, on the Prevention of Tuberculosis; and Dr. H. Owen West, tuberculosis officer for the same county, will outline a coördinated scheme for dealing with the malady. Bacteriological demonstrations will be given in the laboratories of the Institute, and visits arranged to sanatoria, tuberculosis dispensaries, &c. *At the close of the course, for which a fee of £3 3s. will be charged,* an optional examination will be held at which certificates will be granted to successful candidates.

EXCESSIVE SICKNESS CLAIMS UNDER THE NATIONAL INSURANCE ACT: APPOINTMENT OF A DEPARTMENTAL COMMITTEE.—Mr. C. F. G. Masterman has appointed a Departmental Committee to inquire into and report upon the alleged excessive claims upon and allowances by Approved Societies in England in respect of sickness benefit, and any special circumstances which may cause any such claims or allowances. The constitution of the Committee is as follows: Sir Claud Schuster; Mr. Walter Davies, national secretary of the Order of the Sons of Temperance (chairman, Manchester Insurance Committee); Dr. Adam Fulton; Miss M. H. Frances Ivens, M.B.; Miss Mary McArthur, secretary of the Women's Trade Union League; [illegible] A. O. Thompson, president of the National Conference of Industrial Assurance Approved Societies; Mr. A. H. Warren, president of the National Conference of Friendly Societies; Mr. A. W. Watson, chief actuary, National Health Insurance Joint Committee; Mr. J. Smith Whitaker; Miss Mona Wilson; and Mr. Walter P. Wright, Grand Master, Independent Order of Oddfellows (Manchester Unity). The secretary of the Committee is Mr. A. Gray, Insurance Commission, *Buckingham Gate, S.W., to whom all correspondence* should be addressed.

METROPOLITAN ASYLUMS BOARD: INSTRUCTION IN HOSPITAL ADMINISTRATION.—A three months' course of lectures and demonstrations in hospital administration for the diploma in public health will be given at the following hospitals: 1. North-Western Hospital, Lawn-road, Hampstead, N.W. (Dr. J MacCombie, medical superintendent), Mondays and Thursdays, at 5 P.M., beginning Monday, Oct. 6th. 2. Grove Hospital, Tooting Grove, Tooting Graveney, S.W. (Dr. J. E. Beggs, medical superintendent), Monday and Thursdays, at 5 P.M., beginning Thursday, Oct. 2nd. The fee for the course is £3 3s., and medical men are required, before attending at the hospital, to pay this to the clerk to the Metropolitan Asylums Board, Embankment, E.C., giving their full name and address.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., [illegible]

TUE[illegible] of the Skin. 5 P.M., Lecture.

WEDNESDAY.—Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12 noon, Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr Souttar: Operations. Mr. B. Harman. Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture

THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 12.15 P.M., Lecture.—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Davis. Diseases of the Throat, Nose, and Ear, and Diseases of the Skin. 5 P.M., Lecture

SATURDAY.—[illegible] Dr. Davis: Operatio[illegible] Harman: Diseases [illegible] Clinics. X Rays.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

Demonstrations in Clinical Medicine:—

MONDAY.—2.15 P.M., Dr. Wall. [illegible]

TUESDAY.—2.15 P.M., Dr. Grün [illegible]

WEDNESDAY.—2.15 P.M., Dr. [illegible]

THU[illegible]

FRI[illegible] Cases and on Cases of Interest [illegible]

THURSDAY.—2 P.M., Mr. R. Milne.

FRIDAY.—2 P.M., Mr. Walton.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture. Version (continued). 11 A.M., Examination of Patients and Minor Operations.

TUESDAY.—10 A.M., Major Operations. 4 P.M., Class in Gynæcological Diagnosis.

WEDNESDAY.—10 A.M., Obstetrical Lecture: The Induction of Labour. 11 A.M., Examination of Patients and Minor Operations.

THURSDAY.—10 A.M., Major Operations.

FRIDAY.—10 A.M., Gynæcological Lecture: The Treatment of Uterine Tumours. 11 A.M., Examination of Patients and Minor Operations. 4 P.M., Class in Gynæcological Diagnosis.

For further particulars of the above Lectures, &c., see Advertisement Pages.

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students, we are necessarily compelled to defer the publication of communications on other important subjects.

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students' Number of THE LANCET *relative to the various medical examining bodies, hospitals, and medical schools of the United Kingdom is based. We regret that in some cases, however, owing to proofs having been either not returned at all or too late, certain inaccuracies may be found.*

TO ADVERTISERS.

Owing to the pressure on our advertisement columns this week some announcements have unavoidably been held over.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Dr. J. P. Aiken, Sheffield; Addenbrooke's Hospital, Cambridge, Secretary of; Dr. T. Cuming Askin, Woodbridge; Mr. R. Abbe, Germany; Messrs. Arnold and Sons, Lond.

B.—Mr. W. Bryce, Edinburgh; Messrs. Bruce, Green, and Co., Lond.; Dr. J. L. Bogle, Coaley; Mr. A. Bradford, Lond.; Messrs. B. Brown and Son, Huddersfield; Birmingham Corporation, Medical Superintendent of; Mr. S. N. Bruce, Lond.; Birmingham and Midland Hospital, Secretary of; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. Burgoyne, Burbidges, and Co., Lond.; Dr. Edward R. Baldwin, Saranac Lake; Dr. A. Barré, Paris; Dr. J. Lougheed Baskin, Hove; Dr. W. H. Bowes, Ivybridge; Dr. Gurth S. Blandy, Napsbury; Board of Education, Lond., Secretary of; Mrs. Cloudesley Brereton, Lond.; Dr. D. M. Barcroft, Lond.; Dr. M. Bloom, San Francisco.

C.—Mr. H. A. Collins, Croydon; Messrs. Cassell and Co., Lond.; Messrs. J. and J. Colman, Norwich; C. E. C.; Canterbury Mental Hospital, Clerk to the; Casein, Ltd., Lond., Director of; *Chester Courant*, Chester, Manager of; County Asylum, Dorchester, Clerk to the; Dr. George Cooper, Worcester; Messrs. J. and A. Churchill, Lond.; Chesterfield and North Derbyshire Hospital, Secretary of; [illegible]; Mes[illegible], Blackburn; Mr. T. W. Clarke, Chorlton-cum-Hardy.

D.—Messrs. Duncan, Flockhart, and Co., Lond.; Duff House, Banff, Secretary to; Mr. Edward D. Davis, Lond.; Messrs. S. Deacon and Co., Lond.; Devon and Cornwall Sanatorium, Medical Superintendent of; Dorland Agency, Lond.; Dewsbury and District General Infirmary, Secretary of.

E.—Mr. P. [illegible] Messrs. [illegible] Lond.; [illegible] Lond., Manager of; Dr. J. G. Emanuel, Birmingham.

F.—Messrs. Fremlin Bros., Lond.; Major H. C. French, R.A.M.C., Osborne, Isle of Wight; Dr. P. Fernet, Paris; Dr. E. R. Fothergill, Brighton; Factories, Chief Inspector of, Lond.

G.—Mr. R. H. Gamson, Hastings; Messrs. Gerth van Wyk and Co., Lond.; G. R. E.; Mr. Hastings Gilford, Reading; Dr. P. G. Garrett, Hinckley; Messrs. A. H. Grantham and Co., Reading.

H.—Dr. W. Hosegood, Cannock; Hull Royal Infirmary, Secretary of; Dr. R. J. Huston, Kobe; Dr. C. O. Hawthorne, Lond.; Mr. J. I. Hudson, Sydney; Mr. F. M. Hughes, Lond.; Mr. T. Twistington Higgins, Lond.; Dr. Jobson Horne, Lond.; Professor Leonard Hill, Corton; Messrs. Hyatt and Co., Lond.; Mr. W. Sampson Handley, Lond.

J.—Dr. Henry Jellett, Dublin; Mr. R. Jayaramaswami, Madras.

K.—Messrs. Knoll and Co., Lond.; Messrs. H. S. King and Co., Lond.; Kent Education Committee, Lond., Secretary of; Dr. Oskar Klotz, Pittsburgh; Professor A. Keith, Lond.; Mr. James Keith, Murren; Dr. Friedrich Kanngiesser, Metz.

L.—Dr. A. Levy, Lond.; Leeds Public Dispensary, Secretary of; London Temperance Nurses' Co-operation, Lond., Secretary of; Messrs. Longmans, Green, and Co., Lond.; Major J. C. Holditch Leicester, I.M.S., Calcutta; [illegible] Mr. André Lancien, Paris; Mr. Herbert Lund, Manchester; Surgeon-General Sir C. P. Lukis, Ardvorlich; Leicester Guardians, Clerk to the; Liverpool Corporation Superintendent of.

M.—Medical Correspondence College, Lond., Secretary of; Messrs. Mather and Crowther, Lond.; Messrs. Maple and Co., Lond.; Mr. R. Mosse, Berlin; Manchester Royal Infirmary, Secretary of; Miss McLaren, Borough Green; Dr. Malpas, Lond.; Surgeon A. E. Malone, R.N., Benburb; Mr. F. F. Middleweek, Ringwood; Mr. W. Martindale, Lond.; *Midland Counties Herald*, Birmingham, Manager of; Miss McLaren, Great Comp; Mr. Vincent Moxey, Lond.; Messrs. Methuen and Co., Lond.; Dr. Charles Miller, Lond.; Metropolitan Asylums Board, Lond., Clerk to the; Mr. Frank Moxon, Lond.; Dr. E. Magennis, Dublin; Dr. D. de Malpas, Crowborough; Mr. W. M. MacCulloch, Folkestone.

N.—Messrs. J. Nisbet and Co., Lond.; North Staffs Infirmary, Stoke-on-Trent, Secretary of; Napier Motors, Ltd., Lond.; New Saughton Hall, Polton, Secretary of; National Land and Home League, Lond., Hon. Secretary of; National Health Insurance Joint Committee, Lond.; Dr. Sheffield Neave, Lond.; North Riding Infirmary, [illegible] Lond., Editor of; Mr. F. L. Nicholls, Fulbourn.

O.—Mr. R. S. Overton, Lond.; Sir T. Oliver, Newcastle-upon-Tyne; Oxford Medical Publications, Lond., Manager of; Oxford County Asylum, Littlemore; Dr. J. S. Owens, Holm-next-Sea; Dr. James Oliver, Lond.; Olympic Games, Lond., Secretary to Special Committee of.

P.—Messrs. Peacock and Hadley, Lond.; Nurse E. Poland, Folkestone; Miss J. Perry, Lond.; Mr. F. Tennant Pain, Lond.; Price's Patent Candle Co., Lond.; Mr. Henry Parker, Tring Hill; Dr. A. S. Percival, Woking; Mr. F. H. Payne, Lond.

R.—Royal United Hospital, Bath, Secretary of; Dr. Harold F. Renton, Bradford; Royal Photographic Society of Great Britain, Lond.; Messrs. Rebman, Lond.; *Messrs. Richardson and Co.*, Lond.; Dr. David Riesman, Philadelphia.

S.—Mr. W. E. Sargant, Lond.; Messrs. Squire and Sons, Lond.; Messrs. Smith, Elder, and Co., Lond.; "Sunnyside," Dousland; Scientific Productions Co., St. Petersburg; Messrs. A. Siebert and Co., Lond.; Messrs. G. Street and Co., Lond.; Messrs. Spottiswoode and Co., Lond.; Society of Apothecaries of London, Secretary of; Mr. Clement Shorter, Lond.; Ship-Surgeon; Dr. W. T. Scott, Selkirk; *South Wales Argus*, Newport, Manager of; Scholastic, Clerical, and Medical Association, Lond.; Société des Médecins Chefs de Laboratoires de Radiologie et d'Electro-Radiothérapie des Hôpitaux de Paris, President of.

T.—Dr. R. Thompson, Lond.

U.—Mr. J. C. Underwood, Newbury.

W.—Messrs. A. J. Wilson and Co., Lond.; Messrs. A. Wander, Lond.; Mr. E. S. Weymouth, Lond.; Warrington Infirmary and Dispensary, Secretary of; Westminster General Dispensary, Secretary of; Messrs. J. Wright and Sons, Bristol; Messrs. J. Walker and Co., Warrington; West Ham and Eastern General Hospital, Secretary of; Wrexham Infirmary, Secretary of; Mr. F. Wilson, Lond.; Dr. A. D. Waller, Lond.; Mr. R. J. Willan, Newcastle-on-Tyne; Mr. A. M. St. John Wright, Liverpool; Women's Social and Political Union; Mr. E. H. Worth, Lond.; Messrs. J. Williams and Son, Bradford; Mr. S. Willby, East Twickenham; Dr. A. S. Worton, Lond.; Mr. B. Woodman, Croydon; Mr. C. Gordon Watson, Lond.; Wolverhampton General Hospital, Secretary of.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. P. A. Aubin, Jersey; Mr. C. V. Anderson, Margate; Mr. E. Arnold, Lond; A. B. L.

B.—Mr. B. Bernstein, Bradford; Miss D. B. Brockwell, Tewkesbury; Miss R. Brown, Lond.; Mr. W. T. Beswick, Quarnford; [illegible] Lond.; Dr. W. Briggs, Blackburn; Mr. W. Bartlett, Liverpool.

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D.—Messrs Durno, Ltd., Sydney; Dundee Royal Infirmary, Secretary of; Derbyshire County Council, Derby, Treasurer to the; Messrs. W. Dawson and Sons, Lond.

E.—Mr. J. H. Evans, Lond.; Mr. J. Edwards, Formby; Mr. T. Evans, Swansea.

F.—Messrs. Fairchild Bros. and Foster, Lond.; F. W. W.

G.—Dr. S. A. Gill, Formby; G. L.; Miss C. M. Godden, Weybridge; Dr. G. T. Gaillard, Netherfield; Messrs. W. Green and Sons, Edinburgh; Mr. V. Gabriel, Lond.; Dr. A. S. Grünbaum, Leeds.

H.—Messrs. T. Holland and Son, Lond.; H. D. M. C.; H. B.

J.—Miss A. M. Jones, Rossett; Jeyes Sanitary Compounds Co., Lond.; J. H. B.; J. D. W.; J. P. S.

K.—Mr. B. R. Khanna, Lahore; Messrs. C. Knight and Co., Lond.; Messrs. King, King, and Co., Bombay.

L.—Dr. C. Lillingston, Gorleston; Mr. T. S. Logan, Stone; Messrs. Lee and Nightingale, Liverpool; Mr. H. K. Lewis, Lond.; Lord Mayor Treloar's Cripples Hospital, Alton, Secretary of; Lincoln Memorial University, Knoxville, U.S.A., Dean of.

M.—Messrs. Meister, Lucius, and Brüning, Lond.; Manchester Guardians, Clerk to the; Rev. W. Montgomery, Portscatho; Dr. M. McIntyre, Glasgow; Mr. E. W. Marshall, Manchester; Mrs. Montgomery, Grey Abbey; Messrs. Morson and Son, Lond.; Mr. S. A. Mahmood, Penygraig; Mr. D. Maguire, Lincoln; Messrs. Mawson and Proctor, Newcastle-on-Tyne.

N.—North Devon Infirmary, Barnstaple, Hon. Secretary of; Dr. J. S. Nicholson, Munnar, India; Northampton County Asylum, Clerk to the; Nottingham General Hospital, Secretary of.

O.—Mr. C. A. P. Osburne, Norwich.

P.—Dr. D. E. Paterson, Clifton, York; Prudential Assurance Co. of America, Newark, N.J.; Dr. A. M. Pryce, Margate; Messrs. Parke, Davis, and Co., Lond.; P. A. C.

R.—Mr. W. Ruck, Maidstone; Royal Victoria Eye, &c., Hospital, Dublin, Registrar of; [illegible] Truro. [illegible] Mr. H. Robinson, Lond.; Messrs. Roger and Rennick, Wigan; Mr. A. White Robertson, Lond.; *Royal Devon and Exeter Hospital*, Secretary of; Messrs. E. J. Reid and Co., Lond.; Dr. W. J. Ruddock, Newcastle.

S.—Dr. W. A. Sandys, Galway; Messrs. W. H. Smith and Son, Liverpool; Sir D. Semple, Lond.; Star Assurance Society, Lond.; Stanley Hospital, Liverpool, Secretary of; Messrs. Sherratt and Hughes, Manchester; Mrs. R. Bosworth Smith, Binghams Melcombe; Messrs. W. H. Smith and Son, Lond.; South Devon and East Cornwall Hospital, Secretary of; "Surgeon-Major," Sale.

T.—Dr. J. P. Tildesley, Willenhall; Mr. P. R. Tarbet, West Runton; T. C.; T. B.

W.—White Hart Hotel, Margate; Messrs. Watson, Temple, and Waymouth, Westcliff-on-Sea; Whitehaven Infirmary, Secretary of; West Bromwich District Hospital, Secretary of; Mr. B. Wheeler, Manchester; W. L. R.; Mr. R. L. Wason, Southampton; Mr. W. F. Walker, Norwich; Mr. J. W. Williams, Oswestry; Dr. Walmsley, Edgware.

An Address
ON THE
PRESENT POSITION OF POST-GRADUATION MEDICAL EDUCATION IN THE UNITED KINGDOM.

Delivered at the International Conference on Post Graduate Medical Education, on August 7th, 1913,

BY C O HAWTHORNE, M D GLASG,
CHAIRMAN OF COUNCIL, MEDICAL GRADUATES' COLLEGE AND POLYCLINIC LONDON

GENTLEMEN,—A recognition, at least in this country, of the need for the provision of professional educational opportunities for practitioners of medicine, is an experience of comparatively recent years It has been born as a result of the numerous and varied developments which have marked the progress of the science and art of medicine during the last quarter of a century Many of these developments have resulted from the cultivation, in special hospitals or other institutions, of full and exact knowledge of particular and selected areas of medical practice, and not a few require for their successful application technical procedures which can hardly be acquired apart from personal instruction Hence, once granted in the profession a desire to secure the advantages of recent advances in knowledge and methods for the benefit of patients generally, and there is created the necessity for practitioners to resort to institutions where the newer methods of diagnosis and treatment can be seen in operation, and where, under the direction of experts, opportunities for the practice of these methods may be cultivated This, in brief, is the basis on which rests the present urgency for the supply of post graduation technical instruction for practitioners of medicine There is much more to be known, and the claim is a constantly increasing one, there is a more widespread desire to know, there is a more lively expectation on the part of the public that the individual practitioner should know, and perhaps, also, there is greater readiness on the part of those who do know to impart their knowledge to others Evidence of the truth of these statements is clearly written in the numerous organisations for the provision of post graduation teaching which have come into existence in recent years To enumerate these in detail here is not necessary, as a syllabus specially prepared for this conference supplies all the requisite information It is sufficient to say that there is hardly a medical centre in the United Kingdom which does not make at least some attempt to provide for practitioners opportunities for the increase of their knowledge and technical skill, and in saying this, it is due and appropriate to remark that much of this effort may be traced to the example and influence of the late Sir Jonathan Hutchinson, whose recent death has removed a great figure from the ranks of the medical profession

From the experience of teaching institutions engaged in the work with which we are here concerned, the following conclusions may, I think, be drawn First, that there is a steadily increasing desire on the part of medical practitioners for opportunities for the acquisition of the most modern methods of diagnosis and treatment, secondly, that the teaching arrangements made for practitioners must be separate and apart from those organised for the education of medical students—the educational requirements of the two groups are not identical and cannot be successfully combined in one and the same course, thirdly, that practitioners need, more particularly, clinical demonstrations and practical laboratory instruction, but, given the right lecturer, there is a considerable appreciation of the value of systematic lectures, and fourthly, that if post-graduation instruction is to reach and energise the great body of the profession it must be provided under conditions which do not demand from the practitioner an unreasonable expenditure either of time or money

The question which I have now to try to answer is this How far are these conclusions in practical operation in the various parts of the United Kingdom? If nowhere the reply is completely satisfactory, it is at least true that in many centres there are activities which are full of encouragement Taking, as is natural, in the first place, the position of the profession in London, it may reasonably be said, in reference to practitioners resident in the metropolitan area, that the conditions just defined are fairly well met At such institutions as the Medical Graduates' College and Polyclinic, the West London Hospital, the Dreadnought Hospital at Greenwich, and the Prince of Wales Hospital at Tottenham, there are organised courses of instruction (including laboratory opportunities) in practically all departments of professional work, while many of the hospitals devoted to particular forms or distributions of disease offer exceptionally attractive opportunities for personal clinical observation and practice, in all these institutions, too, the fees are arranged on a sufficiently modest basis It is, therefore, a comparatively simple affair for the London practitioner, without neglecting his own patients, to equip himself in any particular branch of practice which he may desire to cultivate Here, too, it should be noticed that some of the general hospitals—St Bartholomew's in particular—have organised admirable special vacation courses in which both hospital and laboratory instruction can be obtained at a period of the year when the demands of private practice are at a minimum And what is true of London in these respects is true, in greater or less measure, of other large towns in Scotland, in Ireland, and in the English provinces, post-graduation educational opportunities exist in these towns and are fairly accessible to resident members of the profession

But whatever may be true of other centres, London, certainly, may be expected to do much more than provide an educational stimulus restricted for the most part to the local profession Here, it may be fairly claimed, is the natural centre of the English speaking world, here, too, are both men and institutions whose names and work are household words to all interested in medical progress, and last, but by no means least here to hand is clinical material unsurpassed either in amount or interest Yet in spite of these advantages it is notorious that as a centre of post-graduation medical education London, in proportion to her opportunities and responsibilities, can hardly boast a mere minimum of success In isolated instances, here and there, no doubt, excellent work is done, but on the whole it is manifest that the great body of practitioners, whether from other parts of the United Kingdom, or from the Colonies, or from America, who set themselves for a time free from practice in order to seek post-graduation instruction, seek this instruction elsewhere than in London To effect an improvement in this state of matters several proposals may be suggested as necessary First is required some central office or bureau where information may be obtained in reference to any or all of the post graduation opportunities which London has to offer, at present the difficulty of obtaining such information is considerable and repeatedly one meets practitioners who have spent days or even weeks before discovering what is most suitable to their individual requirements The relation of such disheartening experiences will hardly encourage further visits into uncertainty and darkness A second need is some measure of cooperation and coordination between institutions engaged in similar classes of work and practice, were this successfully effected it would be easily possible to provide throughout the year organised instruction in each department of study, whereas under existing conditions there may be at one and the same time two or three competing courses in a given subject, while at another date no teaching in the department in question can be obtained As opportunities are thus uncertain and erratic they naturally fail to secure a steady patronage while the multiplication of courses at one and the same time means the existence of two or three weak classes instead of a single strong one and with this a weakening of the enthusiasm and interest of the teachers Thirdly if London is to take its natural place as a great centre of post graduation medical instruction she [illegible] departments [illegible] rovide a full [illegible] from one to six months' absence from practice for the purpose of clinical and pathological study Further, in the prosecution of this scheme there must be obtained the active support and cooperation of all London teachers whose work commands the interest and confidence of the profession These conditions can hardly be satisfied except by the union of a general hospital with a college which shall include in its programme the most effective teachers to be found in the schools and hospitals of the metropolis. It has to be remembered that the aim of post-graduation study is not to persuade men to leave general practice for the narrow ways of so-called specialism, but to increase the all-round efficiency of those on whom the successful application of medical knowledge to the care of the individual sufferer mainly depends.

Now, to organise and erect in London a new hospital as a post-graduation clinical school is outside the range of practical politics. On the other hand, there are general hospitals which from various causes are anything but crowded with undergraduates, and could one of these be convinced that its true function and fortune is to become the clinical centre of an organised post-graduation scheme, a step forward in the advance of London to a position worthy of its opportunities would have been taken. What would have to be added is (1) the association with the hospital of a wide and liberal platform which would welcome all effective teachers and would not be confined to a particular hospital or group of hospitals, and (2) an organic arrangement with certain special hospitals where particularly valuable opportunities for clinical study may constantly be found. It is not to the point to say that something of this kind, on a limited scale at least, has been attempted at certain hospitals in the outlying districts. These are too far afield to be regarded as London organisations, and, what is more important, they can neither secure the teaching staff to be desired, nor can they be effectively coördinated with the special hospitals upon which in a large measure the attraction of London as a post-graduation school must certainly depend. What is required is the position and prestige of a metropolitan hospital in association with a wide scheme of teaching and with the opportunities of the special hospitals. It is not the multiplication of schemes for post-graduation study which is needed in London, but the coöperation and coördination of existing schemes, and the organic relation of these to a central bureau and to a general hospital. By the development of some such organisation London might well become the centre of post-graduation study for all English-speaking practitioners, while within the borders of the plan could easily be preserved the opportunities which already exist for practitioners resident in the metropolitan district and able to devote only a limited amount of time weekly to the cultivation of some selected branch of clinical or laboratory practice. So long as London is something less than this it is living below the height of its opportunity.

The demand which is thus made on the metropolis falls, at least in some degree, on each of the other important medical centres of the United Kingdom. None of these can expect to enjoy the full measure of imperial attraction which London possesses, but each commands a certain area of interest, and has in this area a corresponding responsibility for the care of post-graduation education. In many of them the development of the necessary organisation is a much simpler affair than is the corresponding process in the metropolis. The natural centre in the shape of the medical school and hospital already exists, and with a mere minimum of competing and conflicting interests. What can be done in this direction is shown by the success of the post-graduation courses in the schools of Edinburgh, and Dublin, and Glasgow; and it can hardly be doubted that these examples will be imitated at other centres. When this is accomplished, there need hardly be a practitioner in the British Isles far removed from an efficient opportunity for a periodical process of post-graduation study, with consequent benefit alike to himself and his patients. It surely ought to be the ambition of every university to take its appropriate part in the development of a scheme whose aim is efficiency through improved education.

The opportunities for post-graduation education are not, however, monopolised by the medical schools. There is no reason at all, quite the contrary indeed, why the county and other provincial hospitals should not, each in its own district, take a due share in the process. Many of these institutions are admirably equipped, and yet it is to be feared that not infrequently they exercise but little influence, or at least but little educational influence, on the local profession. Why should not the visits of the members of the staff of each hospital, at least at selected dates, be occasions for a clinical class from the presence of which patients as well as teacher and taught would all alike benefit? It would not only be to the advantage of the hospital that each member of the local profession should regard the hospital as the centre of an organisation in which his interest is engaged and of which he forms a part, but such an arrangement would enlarge the range of clinical knowledge. In the separation which now exists, only too generally, the later phases of many cases discharged from the hospital are largely or completely lost; the practitioner who watches them receives no information from the hospital, and, perhaps not unnaturally, he feels no obligation to take trouble to complete the earlier record. In relation to the local hospital every practitioner should be recognised as a helpful and necessary part of the organisation, and while he may receive some advantages, in his turn he will contribute others to the success of the whole. Possibly before this ideal can be completely realised some new arrangement in reference to staff appointments and some restriction to particular lines of practice of the holders of these appointments may be necessary. If a high level of efficiency is to be reached in any branch of practice there must be some specialisation, and it is a reasonable claim that those who enjoy the special opportunities which hospital appointments present should show that their achievements are equal to their chances. Lastly, in this connexion may be mentioned the Poor-law infirmaries, which contain an abundance of material capable of affording most valuable clinical instruction; all that is needed is some measure of organisation and a demonstrator, with, what is perhaps not so easy to obtain, the enlightenment of the authorities who preside over the administration of these institutions.

If in individual instances nothing else in the shape of local post-graduation teaching is possible, it may be suggested that at least the post-mortem examinations conducted at hospitals and Poor-law infirmaries should be open to members of the profession. These are always instructive and often helpful, and it is a constant regret amongst earnest practitioners that they have so few opportunities of seeing such examinations. It would be easy to allow any practitioner to enter his name on a list prepared for the purpose, and to send to him at least a few hours' notice of any necropsy which had been arranged; and this, good in itself, might well come to be the early beginning of some more ambitious scheme. To say, in view of the present state of public and professional opinion, that any hospital which is not organised as a post-graduation educational centre is neglecting its duty, would be, perhaps, too much, but if not neglecting its duty it is at least missing its opportunity.

Whether the suggestions here submitted are or are not accepted, it will certainly be agreed that there is considerable room for improvement in the machinery of post-graduation medical education as this exists to-day in the United Kingdom. If the movement towards such improvement is to be accelerated, there must be a quickening of both professional and public opinion in regard to the importance of the subject, and it would be all to the advantage, both of medical science and of the health of the community, if members of the public came to expect from their medical advisers an occasional interruption of general practice by a period of work in some post-graduation organisation Such a result cannot be obtained without expense, and as the ultimate benefit would be to the public it is reasonable that the public should bear at least some part of this expense. This might be in the shape of increased professional fees, or, perhaps still better, by the endowment, either by private benefactors or the public authorities, of certain post-graduation educational institutions in order that these may be accessible to practitioners at a minimum of cost. Certain it is that money devoted to a general raising of the efficiency of medical practice throughout the length and breadth of the land would have a large, a profitable, and a beneficent return.

This Conference stands for the cause of post-graduation medical education. Doubtless we in this country have much to learn on such a subject from our continental and transatlantic colleagues; if even in a modest measure we can give them some assistance we are more than content. We cordially recognise that the organisation which calls us here to-day deserves all our sympathy, if only for the reason that it affirms the extension of knowledge and the culture of efficiency among practitioners of medicine to be interests common to all nations and independent of distinctions of race and tongue. To the promotion of these interests are summoned all men of goodwill, and that by a voice which speaks a universal language—the cry of a suffering humanity.

PAIN AND SLEEPLESSNESS:

THEIR REMEDIES APART FROM THE CONSIDERATION OF LOCAL SEDATIVES OR ANÆSTHETICS.[1]

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PAIN is a sensation experienced by all *reflective living* things. It has many definitions, but is best described as an uneasiness, varying from a *feeling of slight discomfort to* extreme distress; and it may arise from the derangement of any function; also from violence, pressure, or undue tension in any part of the body. It has many synonyms—e.g., anxiety, grief, solicitude, disquietude, *mental distress*, uneasiness—and according to its quality and *intensity* it may amount to agony, torture, or torment.

Bain classified pain as of two chief kinds: (1) that which is connected with the different *special senses and perceived* by the action of external things on some part of the body—described *therefore as sensitive*; and (2) pain caused by the disturbance of the various organic sensations, which are the source of all stable *associations, being based upon the* satisfaction of the appetites, the instincts, and the desires.

The *organic sensations* are many and varied. There are, *firstly*, those connected with the muscular feelings which either follow injury or which may result *from fatigue or lack* of repose; secondly, those connected with affections of the [illegible] weariness, or exhaus- [illegible] by sedatives or the [illegible] operate directly upon [illegible] connected with the circulation, which may be caused by long confinement *in one* position, or, as in disease, those more specific pains which indicate *angina pectoris*, caused by excessive tension in *the* heart and blood-vessels—changed conditions of the various *tissues come under this head*, such, for instance, as those experienced in thirst or inanition, and believed *to be due* to the contact of altered blood with the different *parts of the* body; *fourthly*, feelings of pain connected with respiration, as is experienced in the pain of *suffocation*; *fifthly, feelings* of pain relating to heat owing to the coagulation of the neuroglobulin, and pain from cold caused by an interference *with the circulation*; sixthly, painful sensations connected with the alimentary canal, as every one has *noted who has* experienced indigestion or felt hungry, or who has been sensible of nausea, as in sea-sickness; and lastly, uneasy [illegible] organs. These latter are [illegible] the preservation of the [illegible] that Nature had *placed* mankind under the governance of two sovereign masters—Pain and Pleasure—was the first to classify pains in any definite scheme, and he divided them into: (1) the pains of privation, (2) of the senses, (3) of awkwardness, (4) *of* enmity, (5) the pains of an ill name, (6) of piety, (7) of benevolence, (8) of malevolence, (9) of the memory, (10) of the imagination, (11) of expectation, and (12) of *those* dependent upon association. As Bentham states, man *may* pretend to abjure their empire, but in reality he will always *remain subject to pain or pleasure.*

Bain enunciated an axiom that all pleasurable *sensations* were concomitant with an increase, and all *painful ones with* a decrease of some or all of the vital functions. For this [illegible] pain as the *fundamental element* of human progress, and Sherrington considered it to be a psychical *adjunct to the* protective reflexes. Pain more than pleasure is the basis of voluntary action, for when the body is in a state of nutritional equilibrium there is an absence of *pain and the body* needs no protective warning.

Within the last few years much has been added *to our* knowledge in regard to the physiological aspect of pain. *It is pointed out* that there are special and separate heat, cold, touch, and pain spots in the skin, and that there are two systems of cutaneous sensibility—e.g., if a nerve supplying a certain skin area is divided, at once there is loss of heat and of cold sensations, also loss of pain and indifference to the feeling of light touch; but feeling connected with heavier touch (su[illegible] deep-seat[illegible] intact. [illegible] in this d[illegible] tion remaining unimpaired, whilst there is a loss of sensation to pain, heat, and cold. Menthol is known to stimulate the cold spots and solid carbonic acid the heat spots.

Pain sensations pass along the lateral columns of the cord to the optic thalamus; but the cortex of the brain is itself insensitive, as this part of the brain may be cut without pain, and further, pain as an aura in epilepsy (which is a cortical lesion) is unknown. Dr. H. Head has shown that pain in an internal organ may be outwardly "referred" to the skin, because the afferent fibres of the sympathetic nerves, by means of the white rami, enter the same segment of the cord as the sensory cutaneous nerves, and the internal organs irradiate their impulses to the neurons of the cutaneous nerves, thus "referring" the pain to a skin area. Although reflex actions are by themselves practically useless for self-protection, and although instinctive actions are unable to adapt themselves to a new environment, pain is an afferent impulse that appeals to the intelligence, which is thus able to direct and to foresee a result, and so to prevent the continuation of a harmful stimulus.

Pain is therefore good for the mental and moral development of mankind, and a knowledge of things may thus help the individual to avoid pain; further, the more delicate the organ—e.g., the eye or the ear—the more does it feel pain, and the greater the effort to avoid it. The same applies to a highly cultured and refined person as contrasted with a person on a lower plane of development. Every thought and every idea tends to become effective outwardly, and every idea in addition has an affective tone of its own, the sum total of all the sensations tending to give the personal note to any individual consciousness.

The affective tone of the whole of this summation of sensations is a constantly oscillating state of feeling, sometimes higher than the mean point of equilibrium and sometimes lower. In the one case the feeling of pleasure is experienced and in the other the feeling of pain. Feelings of pleasure or pain are both enriched and intensified by perceptual and intellectual associated memories, which increase the vital functions when pleasurable, and we desire to experience them again, but if painful they lower the vital functions and we desire to avoid them. All conditions which interfere with or suppress the fu[illegible] or which interfere with [illegible] *to action" give rise to* [illegible] sleeplessness is mental or physical pain or suffering in some *form or another.*

Sleep is a bio-rhythmic rest and a necessity of life; even organs like the heart with an autonomic nerve-supply require and obtain rest. As to the cause of sleep the question has been a matter for much [illegible]sations suggest a diminution of [illegible]rebral cortex, and my own [illegible] in a case at present under [illegible]erated upon before admission into the Claybury Asylum for a malignant growth of the brain through a trephine hole over the left parietal area, but the tumour has since reappeared through the surgical opening in the bone, and when the patient is asleep the size of the presenting tumour is distinctly smaller in all directions when measured with a pair of millimetre calipers. It is well known that sleep produces a depression of the functions of other organs than the cortex, for in sleep the circulatory and the respiratory systems are both retarded, and this retardation under the influence of sedatives may amount to a complete cessation, which is the danger when drugs are taken without medical authority in order to produce sleep. Lépine long ago suggested that there was a temporary *shrinking* of the extremities of the neurodendrons in the sensory anæsthesia and the *motor paresis of hysteria*, which would account for the interruption and suspension of their normal functions. Duval agreed in this, but Kölliker denied the occurrence of amœboid movements. Ramon y Cajal sided with Kölliker, but Demoor, Stefanowski, and Querton state that the retraction of the moniliform processes upon the dendrons can be proved, and that sleep is caused by such retraction. Lugaro stated that the gemmules of the dendrites can expand and contract, that they expand during sleep and contract during the processes of thought, so that in the former nerve currents are diffused and widely distributed, whilst in the latter nerve currents are accentuated and concentrated, and thus is physiologically explained the process of attention.

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[1] A paper read as a reporter to open the discussion before the Section of Therapeutics at the Seventeenth International Congress of Medicine.

The experiments of Winterstein tend to prove that in sleep there is a diminution of oxygen storage and an accumulation of fatigue products. Verworn suggests that in sleep there is a *restitutio ad integrum* of the brain functions, and during this process there is an increased consumption of oxygen in the tired neurons, and he contrasts sleep with anæsthesia during which there is no repair of wastage and oxidation ceases. He agrees that sedatives may be of benefit by causing sleep, but he also maintains, if I understand him rightly, that sleep only follows the effect of sedatives when their "paralysing effects" have passed off.

When the living neuron is kept in an isotonic medium it readily takes up the blue of the intra-vitam methylene blue, showing the power of converting latent into nascent oxygen, but when the neuron is placed in a weak solution of hydrochlorate of morphia there is no blue colouration of the neurons with the intra-vitam stain, showing, unless the acid medium causes it, that the power of the narcotised cell to take up oxygen may be paralysed. Verworn maintains that a narcotic hinders the access of oxygen to the nerve cells, or to the oxidisable material in the cells, and he thinks the lipoid substance is the oxygen carrier. The narcotic may, however, act upon cell protoplasm, making it less able to be oxidised, or the narcotic itself may absorb the oxygen and so prevent the cell using it for its own oxidation process. It is also possible that these oxidation changes may occur in the synapses of the neurons, and in particular the synapses of those neurons which receive the stimuli from the different sense organs, a "refractory phase" thus occurring which raises the resistance to the passage of impulses from without; and in the opinion of Leonard Hill the cessation of sensory stimuli from without, which ordinarily arouse consciousness, is the great factor in sleep. He considers the resistance to the spread of stimuli in association synapses to be due to the exhaustion of material in the nerve cells, and so to be the essential condition for sleep. Meyer and Overton attempted to explain the action of insoluble drugs like sulphonal in producing sleep by suggesting that their solubility was effected in the plasma-lipoid membrane of the neuron itself, but the observations of Winterstein as to the diminution of oxygen storage seems to be the more likely view, and it is supported by the presence in sulphonal poisoning of hæmatoporphyrin in the blood and urine, which is chemically a deoxidised hæmatin. When the Nissl granules were considered a normal constituent of the living neuron a theory was advanced by A. Salmon, of Florence, that their integrity depended upon the secretion of the ductless glands, and of these the pituitary was believed to be the one most closely connected with sleep. The ductless glands may play an important part in the sleep of hybernating animals. Whichever theory be accepted as the cause of sleep, the treatment of sleeplessness is "to break the habit," which should be done by removing the causes, and these may be classified as either physical or mental and moral.

It is my belief that although the normal amount of sleep may vary in different individuals, it should always be extended to at least 12 hours for children under 5 years of age, and to at least 10 hours up to the age of 15—i.e., during the period of active growth, and attention has already been called to this by Dr. T. Dyke Acland. I believe the increase in insanity in boys under 15 years of age which has been recorded during the last ten years (and calculated on the basis of the same Census), and in girls from the age of 15 to 20 years, could be modified by the extension of the period of rest in bed. Over 3000 cases of young persons of both sexes under the age of 20 years are registered as becoming insane every year in England and Wales, and, as already stated, insanity at this age, according to the Lunacy Commissioners' statistics, is on the increase. It is asserted that only during the period of sleep does anabolism or the restoration of the neuron take place, and it is imperative for the preservation of the health of the nervous system that every assistance should be accorded to young persons to obtain the proper amount of sleep.

Of the physical causes of sleeplessness, a moderation in the use of tobacco will sometimes prevent wakefulness. Arterio-sclerosis, with high arterial tension, bronchitis, asthma, feeling cold, especially cold feet, over-fatigue, strange or new surroundings, the presence of light, or of any unusual noise will cause sleeplessness, apart from a host of other causes. Tea and coffee drinking as well as excessive alcohol and the various drug habits are frequent causes of sleeplessness. High altitudes or sleeping near the sea are both causes of sleeplessness to some persons, but pain of some kind or another is the most frequent physical cause. Among the moral or mental causes are anxiety and worry, domestic or financial stress, grief at the loss of a near relative, loss of social position, or the overwhelming effect of one great emotion, such as the breaking off of a girl's engagement, have all been known to me as the cause of sleeplessness and also of mental breakdown. Mental overwork for the young, owing to the anxiety associated with it, and the stress of severe competition, such as working for examinations, have also in my experience had the same effect. I have known nurses who had taken to night duty for the first time to be absolutely unable to sleep during the day, and in consequence have had to give up their work.

The logical, and therefore the correct, treatment of pain and sleeplessness from the clinical standpoint is to remove the cause, and failing this to treat the symptoms. The remedies for these may be considered as either direct or indirect, and firstly the direct, which (*a*) act upon the cortical grey matter or its blood-supply, and which are therefore the more purely hypnotic remedies or drugs; and (*b*) those which act upon the whole of the nervous system as sedatives, anodynes, analgesics, and narcotics. Secondly, those which, although themselves not sedatives, nevertheless act as such indirectly by removing the disturbing conditions that cause the sleeplessness or pain. As to the latter, I have known restless days and sleepless nights to be relieved by removing carious teeth, and of the many causes of insomnia possibly this is one which is very frequently overlooked. I have met with cultured and educated persons whose general vitality had been lowered and whose digestion had been seriously impaired from long-continued oral sepsis through the neglect of carious teeth, and to whom want of sleep had become almost a cause of insanity. I have also known headache so persistent as to culminate in a complete mental breakdown and in a direct attempt at suicide, because of eye-strain through the presence of an undiscovered myopic astigmatism which the use of proper glasses completely restored. The removal of adenoids, and of wax from the ear have relieved insomnia. The same applies to the irritation of teething in young children or to the effect of intestinal worms.

The condition described as intestinal auto-toxæmia may also, in my experience, be associated with sleeplessness, and a variation of the intestinal flora through a change in the dietary, as suggested by Sir Lauder Brunton and Dr. Brunton Blaikie, has often been the means of relieving insomnia and restlessness. The treatment suggested, which is as follows, was commenced after examining the collected urine of 24 hours for the presence of indican, and was carried out somewhat extensively in mental cases. The first day, half a pint of warmed (not boiled) milk, with 3 grains of citrate of potassium every two hours during the day, and 1/16th grain of calomel every two hours (six doses). The second day, 2 drachms of sulphate of sodium in half a pint of warm water at 6 A.M.; at 8 A.M. and every two hours afterwards (except if asleep during the night) half a pint of warm water with one ounce of grape sugar—the latter to be lessened if there was diarrhœa. The third and fourth days as on the second, but without the sulphate of sodium. The fifth, sixth, and seventh days half a pint of a solution of plasmon specially prepared with a pinch of salt every two hours. The week's treatment as above directed so altered the toxæmia caused by the intestinal flora that in a large number of cases it gave refreshing sleep, it diminished mental depression, improved the appetite, and assisted the elimination of indoxyl sulphate, skatol, and others of the incomplete urates—all of which appear to act as ptomaines. In mental cases the great difficulty on the part of the patient was to persevere with the treatment.

The sleeplessness of many elderly and middle-aged men is often caused by commencing *arterio-sclerosis*, and for these erythrol tetranitrate acts better than any sedative.

Other effective although indirect remedies for sleeplessness, associated with increased arterial tension, are podophyllin gr. ¼, extract of colocynth gr. ii., aloes gr. ii., and elaterium gr. 1/10. The various eliminating laxatives and purgatives, probably the best of which is calomel in one-half or one-grain doses taken once a week, are most valuable remedies for sleeplessness. Even a minin of croton oil is a valuable as well as an active remedy. The hydragogue cathartics, such as the sulphate of magnesium and sodium, when administered should be repeated for some time after the commencement of watery evacuations, as otherwise the motions may not become feculent. Iron associated with arsenic may be very successfully used as an indirect sedative for the cure of the anæmia which is often a cause of mental restlessness. I have generally used the persalts combined with glycerine and chlorate of potassium, but sometimes iron in an effervescing state, as a chalybeate water, may answer better. Iron preparations may act upon the neurons direct, as the cytoplasm contains iron organically combined, but probably it acts indirectly by curing the anæmia and thus relieving the restlessness and the sleeplessness known to accompany it. I have known marked permanent good to follow its use in epileptic insomnia, as also the insomnia so often occurring in anæmic girls with irregularity of the menses.

By adding tone to the cerebral arterioles digitalis may act as a cerebral sedative, especially in the distressing wakefulness of delirium tremens, thus probably causing a certain amount of cortical anæmia. In certain cases of acute insomnia associated with cardiac failure I have known repeated doses of 10 minims of digitalis or 5 minims of the tincture of strophanthus give refreshing sleep. When strychnine is used its effect is best kept up by alternating it with 5 minims of the tincture of nux vomica for a few weeks, with a week's interval in between. Digitalis effectually prevents passive congestion in lax arterioles, as when the patient previously was only able to breathe with much effort and only by sitting up in bed, after taking digitalis he was able to obtain quiet sleep in the recumbent position. The extract of Calabar bean or the liquid extract of ergot has given sleep and rest, as well as relieved excitement in some cases probably by inducing contraction in the cerebral arterioles. I have used both in cases of puerperal eclampsia and in the epileptiform seizures of general paralysis, also in those associated with epilepsy.

When the pulse was bounding, firm, and full, I have used venesection—and both sleeplessness and excitement in the status epilepticus have been thus controlled. In sleeplessness with cerebral excitement, tartar emetic in the form of the vinum antimoniale given with morphine, by lessening the arterial pressure, has been found a reliable vascular sedative. Tartarated antimony is a muscular depressant and it acts especially upon the cardiac muscle through the terminal vagi. The tincture of aconite in small repeated doses in certain periodic forms of sthenic restlessness, or in states of recurrent excitement, serves as a useful vascular sedative.

I have used continuous immersion in water just above the body temperature, and the treatment has sometimes resulted in soothing sleep following upon a period of marked delirium, and especially was this so when cold was applied to the head at the same time. A case of chorea with high temperature is related by Dr. F. W. Mott to have been almost at once soothed by this treatment of warm bath and cold to the head. The difficulty of applying prolonged immersion as a method of treatment with mental cases is the unreasonable fear entertained by the patient, and the consequent struggling, and for this reason I have been obliged to discontinue the practice, except in very rare cases. As to the *rationale* of continuous immersion I am unable to find from the experience of others whether its therapeutic value is due to changes in the arterial tension brought about by the mechanical effect of the bath water, or whether the heat of the water acts as a derivative, or whether the bath water encourages some change in the metabolic activity of the tissues, thus acting as a sedative. I have used the wet-pack for sleeplessness with acute delirium, but the method is not without danger from sudden or unexpected collapse, and it is a remedy which needs caution in its use. Moreover, it is one which in the case of certified patients has to be specially reported to the Lunacy Commissioners as "restraint." I can speak very highly of the efficacy of the Turkish bath and of motor drives, but I have no personal knowledge of the value of hypnosis.

Phosphorus is a remedy for nervous breakdown and nervous exhaustion which has a great vogue among the laity. The tissue of the nerve cells contains phosphorus, and we know that lecithin in acute exhaustive states of the brain breaks up into cholin and glycero-phosphoric acid, but phosphorus to the brain in sleeplessness is not what iron is to the blood in anæmia, although *some of the glycero-phosphates still* enjoy a high place as remedies in states of nervous breakdown and sleeplessness in order to restore the nervous system.

Alcohol administered with easily digestible fluid nourishment during periods of acute exhaustion serves as a most valuable sedative, but it needs to be used carefully in view of the fatal habit of indulgence for its stimulating pleasure. I have used it for the acute delirium and for the insomnia of the toxic fevers and states of puerperal sepsis with marked good effect. The abnormal rapidity of disintegration in some of the forms of brain exhaustion called acute confusional delirious mania and acute restless melancholia impairs the nutrition so rapidly that death may occur before the insomnia and the delirium subside, unless the strength is maintained by giving stimulants; and in no other condition is the vigorous administration of alcohol with appropriate forms of nourishment more necessary. If life is to be saved in these states alcohol must be administered, and although there are several kinds of alcohol from the methyl, ethyl, propyl, butyl, and amyl groups, the best form to hand is a dry Moselle, such as Zeltinger, or a dry sherry. I believe the easily diffusible œnanthylic ethers of port wine, or an effervescing champagne, may save life in such states. In spite of all help, however, the deaths from this form of mental exhaustion in my experience are 70 per cent. of all the cases affected, and statistics in regard to them also yield the same fatality in the best mental hospitals in America. To counteract exhaustion and to maintain power the free administration of stimulant nourishment is imperative. The alcohols are stated by Dr. J. B. Bradbury to increase in toxicity as they increase in molecular weight, but their stimulant and hypnotic effects are increased more than their toxic effects with their increased molecular weight. As to nourishment, I have used plasmon, Benger's food, and sanatogen, the latter, which is stated to be casein with glycero-phosphate of sodium, being more useful as a nerve restorer when alkalines are needed. Dr. Charlton Briscoe states that when the urine is acid the vegetable phosphate food phytin may give sleep when other remedies fail. I have used as indirect sedatives Mellin's food, cornflour, broths, biscuit powder, milk and soda, albumin water, raw meat juice, gruels, beef juice, and peptonised beef tea in states of nervous exhaustion and sleeplessness.

Loss of sleep is the most prevalent and certainly the most distressing early symptom of insanity, and absolute repose is necessary if the patient is to recover. Unless sleep can be procured he or she will most certainly break down. Sleep is essential and must be procured at all cost, even at the cost of pushing sedatives to the full extreme. Sleep is more necessary for both rich and poor than food. An impending mental breakdown may be avoided by long sleep, and it is incumbent, obligatory, and necessary that the medical man should administer sedatives to secure this if it cannot otherwise be procured. The great difficulty is to choose which to give, another difficulty is to understand how sedatives act. I once administered ½ grain of morphia to a case of threatening puerperal insanity in which the patient had been sleepless for five nights. She slept for 36 hours, but woke up perfectly well, so far as the mental confusion and delirium were concerned, and I believe that in this case an attack of insanity which had started was cut short.

Although morphia, in my opinion, is the best remedy for the prolonged delirium of exhaustion or of septic feverish states, yet there is much danger from its use. Firstly, there is the habit and toleration which may follow its repeated use; secondly, there is the serious risk from it in the young or with children owing to its depressing effects upon the respiration; and, thirdly, there are the digestive disturbances which so often follow after taking it.

Of the direct sedatives opium is *par excellence* at the head of the list, and probably the type of the group of direct sedatives. It owes its chief medicinal and remedial effects to the alkaloid morphia (dose 1/12 to 1/2 grain subcutaneously). Opium and its derivative morphia are certainly the best remedies for the prolonged pain of growths, tumours, and the exhausted states of feverish delirium. Opium controls "psychic pain" better than any other remedy; it is a cardiac stimulant and is a specific for the acute mental depression met with in old people, in whom it acts as the most reliable antithetic remedy to painful emotional states, but there must be remembered the very real danger of the opium and morphia habit through its use. Combined with belladonna it is most helpful for alimentary, digestive, and "vagal" pains. The anodyne tincture or nepenthe, imcompatible with alkalies, consists solely of opium, and its uniformity of strength has commended its use for the same conditions as are relieved by opium. It was claimed that nepenthe produced less after-effects, less headache, giddiness, constipation, and less diminution of nervous energy.

Conium preparations are generally unreliable, but I have used the succus conii in drachm doses for the motor restlessness and the insomnia of chorea and of acute mania. The vapor conii is very helpful as an inhalation for the sleeplessness of bronchial asthma. The uncertainty of conium preparations is apparently due to the presence of two alkaloids present in varying quantities but with dissimilar effects. The alkaloid conia has a direct effect upon the terminal endings of the motor nerves, lessening their excitability, whilst methyl conia acts directly upon the cord, first exalting and then abolishing its reflex action. As is well known, the unguentum conii is a specific for the night restlessness of pruritus. Camphor monobromate, in five-grain doses, has proved a useful sedative in the sleeplessness of epilepsy and chorea, as well as in other forms of spasmodic excitement.

Chloral hydrate has the disadvantage of weakening and depressing the heart's action by paralysing its intrinsic motor ganglia, and directly also, but less than morphia, of affecting the respiratory centre in the medulla. All circulatory and respiratory conditions, as well as all acute and prolonged diseases, are, in my opinion, from experience, a contraindication to the use of chloral, but I have prescribed it extensively. It is a feeble anodyne, relieving pain only by causing sleep; it is a most useful remedy for simple and uncomplicated insomnia. It acts by depressing the reflex activities, and it should never be given at night in full doses without a hot-water bottle to the feet. It is very useful in puerperal insomnia. There are idiosyncrasies in regard to chloral, and I have known a severe petechial eruption to follow its use.

Bromal hydrate has been used in doses of 3 grains to relieve pain and produce sleep, but in my opinion it is somewhat too irritating unless freely diluted. Bromalin has been used as a hypnotic as well as for epilepsy, but I believe that few now employ it. Chloralamide, recommended by von Mering to overcome the depressing effects of chloral on the circulation because of the ammonia it contains, in doses of 15 to 30 grains, is a very useful hypnotic, combining the effects both of chloral and of bromide. It is stated that a less quantity is absorbed than when chloral is given.

Chloralose, introduced by Henriot and Richet, and given in 5-grain doses, has been used by me as a safer hypnotic than chloral. It is believed to increase the reflex activities. I have used croton chloral hydrate in 5-grain doses to relieve the sleeplessness depending on paroxysmal neuralgic pain of the fifth pair of nerves. Paraldehyde, introduced by Cervello, is a safe hypnotic in doses by the mouth of ½ to 2 drachms, and twice the amount by rectum. It gives calm sleep without depressing the respiration or the circulation. The pulse gains under its action, and in the insomnia of alcoholic drinks it is superior to and safer than chloral. It is not an analgesic nor a sedative, but a hypnotic, and possibly the best known for cardiac weakness and for the restlessness of old people. I have used it largely, and the only contraindication to its use is bronchitis, phthisis, or some affection of the respiratory tract by which it is mostly eliminated.

Validol, m. x., which is a valerianate of menthol, is used as a nerve sedative to relieve mental pain and anxiety and the apprehensiveness or the feeling of fright sometimes felt in states of depression. It is used also in insomnia attendant upon sea-sickness. Valerian itself in large doses can often give sleep in agitated cases of neurasthenia or in the sleeplessness of hysterical insanity. As a cooling external application validol camphorate is said to be useful; it is also useful for faintness, because it stimulates the "cold spots" on the skin, as does menthol. I have recently used trivalin subcutaneously as a pure hypnotic. It acts quickly and leaves no bad after-effects. It is a trivaleriate in morphia, cocaine, and caffeine. Lupulin, in 2-grain doses of the form of a brown powder obtained from the cones of the humulus lupulus, and given at bedtime, may produce sleep in the case of hysterical and neurasthenic cases of both sex. A pillow filled with hops is said to promote sleep, from the lupulin which is probably inhaled.

Possibly of all the sedatives, the bromides are the most valuable to the nerve centres; they slow down the spinal reflexes and soothe cortical motor areas. They are more useful for the sleeplessness which is associated with restlessness and excitement rather than sleeplessness associated with depression. All the bromides are most useful in the sleeplessness which accompanies overwork, or that which may be associated with tactile hallucinations, also that restlessness which arises from uterine affections reflexly and about the period of the climacteric. In "night terrors" and certain forms of occipital headaches associated with neurasthenia the bromides may be considered to be "specifics." Combined with chloral, or chloral, hyoscyamus, and cannabis indica, as in the formula for "bromidia," the bromides will produce a refreshing sleep in senile insomnia with mental depression and agitation, or in acute hallucinatory restlessness, when every other remedy has been tried and failed. The bromides, with citrate of caffeine, gr. v., are most useful in some forms of headache at or about the climacteric period. Some of the analgesics of the coal tar derivatives act as hypnotics—e.g., antipyrin, gr. v. to xx., phenacetin gr. x. (with quinine gr. i. or citrate of caffeine gr. iii.) are especially useful for headaches coming on about the menopause. Pyramidon, in doses of gr. v. to x., has been used as a sedative as well as an antipyretic. The addition of bromine as in bromo-phenacetin helps this action.

The bromides are best given in single large doses than in small repeated ones, and they are best administered in an alkalinised medium, as an adjuvant, such as a glass of milk. A contraindication to the bromides is valvular heart disease, for they act as cardiac depressants. Strontium bromide may be used in preference to the potassium salt when there is heart weakness, and the sodium bromide when there is gastric irritation. The long-continued use of the bromides gives rise to a rash, as well as a weakened motility, stupor, and hebetude; to loss of memory, impairment of the intellect, and to mental torpor, but some of the dementia may pass off when the bromides are discontinued. Bromipin, an oily compound of bromine, in ½-drachm doses is useful in sleeplessness and for headaches after epilepsy, or in sleeplessness connected with neurasthenia, as well as with some motor disturbances such as those of sea-sickness.

Cannabis indica is useful in sleeplessness associated with migraine, or with asthma, or with uterine spasm, and especially when combined with the bromides. It is apt to cause unpleasant hallucinations in some women. Scutellaria lateriflora in doses of 15 grains has been recommended as a cure for insomnia, epilepsy, and spasmodic nerve diseases. Piscidia—the bark of Piscidia erythrina, commonly called the Jamaica dogwood, a tree growing in the Antilles, has been greatly lauded as a remedy for insomnia and the pain of dysmenorrhœa. It is said to act upon the sensory ganglia of the spinal cord—dose, 20 min.-2 dr. of the liquid extract prepared by Parke, Davis, and Co.

Chloroform has been used as a hypnotic both by inhalation and internally in the form of chloral. In the extreme restlessness and the excitement of epilepsy, when morphia in ordinary doses fails to produce effect and when the patient is rapidly becoming exhausted from loss of sleep, chloroform has been administered, and while the patient remained unconscious morphia was injected subcutaneously; long-continued sleep resulted from which the patient woke up greatly refreshed, and from that time convalesced.

Hyoscyamine, in the form of hyoscine hydro-bromide, and in doses of 1/100-1/10 grain, is used hypodermically, but rarely to procure sleep. It is very beneficial as a sedative in the restlessness of acute delirium, or the excitement of epileptic or hysterical cases. It acts quickly and upon the reflex centres, causing muscular paralysis; it dilates the pupil, causes dryness of the throat, quickens the pulse, and generally lowers the arterial pressure through stimulation of the vaso-dilator nerves. It should not be used for feeble cases, but only for strong, muscular persons, who must be calmed at once without waiting for the delay which accompanies the administration of other sedatives, such as chloral, the bromides, or sulphonal.

The methane, ethane, propane, and butane group are used extensively for their hypnotic effects, and not as anodynes.

Sulphonal, tetronal, and trional are all comparatively insoluble powders, and are taken in doses varying from 10 to 30 grains. Sulphonal, which is tasteless and odourless, is the most often employed, and tetronal, which has a camphor taste, the least. The sulphonal group are cumulative in their action; muscular exercise diminishes their influence, so that to obtain full effect the patient should be kept in bed. Being almost insoluble in water, although less so in warm alcohol, their effect as hypnotics are stated to be due to their solubility in the lecithin or the cholesterine of the nerve-cell. Winterstein's experiments seem to suggest that all [illegible] *ing powers* [illegible], as stated, [illegible] which is a [illegible] ipport this view. Their action is certainly to disintegrate the red blood corpuscle by breaking up the lecithin. I consider that sulphonal is a strong neuronic poison, probably disintegrating the lecithin of the nerve-cells. Sulphonal is believed to diminish the alkalinity of the blood. It should only be used for the sleeplessness of chronic cases.

The urea compounds are also useful, and veronal, adalin, proponal, and bromural, all of which are colourless and tasteless crystals, are of this group. Each of these is more soluble in hot water than the methane group, and all are more soluble in alkalies, hence their effect is believed to be retarded until the intestinal juice has acted upon the drug. The urea groups are all more hypnotic in their effects than the mathane or ethane groups. They are useful for the insomnia of restless nervous cases, those with anxiety and depression, which come on—as is usual in the case of melancholics—in the early hours of the morning. These compounds act quicker than do the sulphonal group, and their effects pass off sooner also.

Urethane, introduced by Schmiedeberg in 1885, given in 5-grain doses, is chemically ethyl carbonate. This is also of the urea group, and this class includes hedonal, which is given in 10 to 30 grain doses. Urethane is a very safe and useful hypnotic and is very soluble, more so than the other members of this group; the taste is not unlike that of nitrate of potassium, and, like it, urethane is also a diuretic. It can be given to children, and is occasionally given before an operation to supplement the anæsthetic effects of chloroform. I have known it to produce calm and refreshing sleep with no unpleasant after-effects It does not depress the respiratory or the circulatory system. It has the advantage over paraldehyde of being nearly tasteless. Its action as a pure hypnotic is quick and not too lasting, and the sleep induced is not too deep in character. Patients taking it wake up at slight noises, but quickly fall asleep again when interruption ceases, the sleep lasting from five to seven hours. Kraepelin and others agree that, apart from causing sleep, urethane has no power to relieve pain, only acting as a pure hypnotic. Where there is a tendency to excitement or to restlessness urethane is inferior to paraldehyde. It is most effective in cases where there is exhaustion or sleeplessness with a low state of nutrition, because the amide group gives the stimulation of the ammonia it contains. In the longer duration of its action as compared with paraldehyde it is, in my opinion, preferable to it. It seems to act directly upon the cerebrum and it does not give rise to disturbing effects upon the digestive tract. It is, as a rule, well borne by patients, and the sleep which it causes more resembles normal physiological sleep than that obtained after the use of any other hypnotic. I used it largely years ago.

Some of the coal-tar derivatives other than those already named—hypnone, for instance (which chemically is acetophenone), introduced by Dujardin-Beaumetz, given in 1 to 5 minim doses—have been used as hypnotics when freely diluted. Hypnone is only stable in oil or in alcohol, and the taste strongly resembles that of bitter almonds, and in some cases it has quite failed to give sleep.

Hypnal in 10-grain doses has also been used as a sedative and a hypnotic. It is a recrystallised mixture of chloral and antipyrin. Turpentine has been used for sleeplessness in some cases of hystero-epilepsy with striking benefit, and belladonna combined with the bromides, when other remedies have failed, has been of use in epilepsy and sleeplessness resulting therefrom.

Amylene hydrate, or tertiary amyl alcohol, introduced by von Mering in 1887, is a colourless liquid, of pungent taste and odour, resembling a mixture of paraldehyde and camphor; it has been freely used as a hypnotic before paraldehyde came into common use. It is a comparatively safe hypnotic, although it weakens the respiration. Its hypnotic effects are those midway between chloral and paraldehyde. It is quicker in its action than the latter and more transient in its effects. I used it largely some years ago in mental cases.

Luminal (one of the veronal group) by the mouth (3–5 grains) and luminal sodium subcutaneously have been used by one of my colleagues in Claybury to relieve sleeplessness *associated with malignant disease of the upper jaw, and* it has acted when other drugs have failed.

Mr. Langford Moore, the pharmacist to St. Bartholomew's Hospital, has kindly given me a list of the hypnotics and sedatives in most common use at that hospital, and in addition to opium, chloral, and the bromides they are paraldehyde, chloral amide, chloretone, urethane, pyramidon, sulphonal, and trional.

The chief aim in the relief of sleeplessness is to break the habit, and, as in other things, a slight change in the mode of life may do this. Dr. Johnson used to advocate change of air, and if this were not possible then a change of room, and if not this, then a change of bed! The hygiene of the bedroom must not be neglected, its temperature, the bed, bedding, and the pillow may all need attention. At times reading to sleep may soothe, at another hot drinks, and even a dose of peppermint water may send one to sleep when more specific remedies are demanded. Although much has been written about the real physiological cause of sleep, we are yet far from understanding it.

A CONTRIBUTION TO THE STUDY OF PELLAGRA IN ENGLAND.

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(*With Illustrative Plates.*)

IN connexion with a case of doubtful nature under my care, my chief, Dr. L W. Rolleston, called my attention to a series of articles[1] dealing with the subject of pellagra as found in Great Britain. With his consent, I asked Dr. L W. Sambon if he would care to see the patient. This the latter very kindly did, and expressed the opinion that she was suffering from pellagra of the typhoid type. Such a diagnosis, made by one whose opinion on the subject carries so much weight, caused me some concern, for I had a very clear recollection of a patient of mine (Case 7) who died last year in the asylum, and who presented an almost parallel condition.[2]

My attention having in this way been drawn to the subject, it was natural that I should discuss it with my colleagues and with the senior members of the nursing staff, and one name after another came to our minds of patients now deceased whose records I examined for evidence to confirm our recollections. The next move was to search the wards for any possible ca [illegible] asylum. Having [illegible] this matter, and to [illegible] the results of my investigations will not be without interest. These results, I submit, tend to show that in all probability [illegible] at any rate in [illegible]

[illegible] opportunity of visiting Prestwich Asylum, Manchester, and thanks to the courtesy of Dr. J. L. Stephenson, I have seen the two very instructive cases of pellagra which are under his care. I also saw at Bethnal House Asylum on August 15th, 1913, a patient (again a woman) who is suffering from pellagra.

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[1] [illegible]

[2] [illegible] me Journal of July 19th, 1913.

and Dr. J. W. E. Cole kindly permits me to mention her case. Very striking is the symmetry of the skin lesions on the face, neck, and hands. This patient links up in my mind different cases I have seen. The dull brown dry appearance of the hands recalls Case 1 of my series, whereas the face approaches more to the type of the first Prestwich case and of my Case 10. Professor Sturli, of Trieste, who was present, supported the diagnosis with the weight of his wide experience of pellagra. It is of interest to note that this case came, as did some cases in my series, from the Middlesex County Asylum, Wandsworth, and that the patient had the disease while in that institution]

I do not propose to attempt any lengthy clinical descriptions—opportunities for which will, I think, occur next spring—but rather, if it may be, to make good my case for the existence in this asylum of several cases during the eight years it has been open, and to suggest that it is at least likely that my experience may not differ greatly from that of others in large asylums, that the precise nature of certain cases may have escaped the attention of others besides myself. This would only mean, in connexion particularly with pellagra, that history was repeating itself. I will refer first to the case of the patient who was visited by Dr. Sambon as above mentioned.

CASE 1.—A. B., an unmarried girl engaged in housework, admitted from the Infirmary, Edmonton, on May 15th, 1913, aged 29, height 4 ft. 11 in., weight 7 st.

History.—Born at Holloway, was for two years at Stevenage (aged 10), next lived at Highgate, subsequently at Whetstone, at which place she suffered (her mother tells us) with pain in her eyes before rain fell, the pain passing off with the downpour. In 1907 she went to live at Palmer's Green, and her medical attendant there is said to have described her as an obstinate neurotic patient. The only other place she had visited was Newbury, Berks. In November, 1912, she had two teeth out, and has "never been right since." Her sister tells me, however, that she had not been well for 12 months. She complained, she says, of having numbness of her legs, which were "hot inside and had no feeling outside." She adds that two years ago there was a dryness of the backs of her hands, but that her face was not affected at all. She was not overworked, and had a comfortable home, but six years ago she was acutely depressed. No family history of insanity obtained.

State on admission.—Her general health was indifferent, but there was no evidence of any well-defined disorder. Her mental state was one of confusion, with excitement. She was restless, noisy, and incoherent; she had visual and auditory hallucinations—e.g., she heard the birds talking to her. There was a tendency to refuse food. She could give her name and age correctly, but was unable to say how long she had been in the hospital. She fancied that little children were being cut up near by. At this time the calls of nature were not neglected. The [illegible] *reacted to light. No definite nystagmus was* then [illegible] out. The knee-jerks were brisk. At this time [illegible] from albumin, specific gravity 1025, reaction acid. The temperature chart is attached. (Fig. 12.)

Progress of case.—June 2nd: "Much quieter and looks better, but has los[illegible] oon-fed and is very confused." 20th: [illegible]. She has had irregular fever (about [illegible] a *troublesome stomatitis."* 25th: About this time I went on sick leave for a fortnight, but I am informed that a few days later an eruption appeared about the patient's mouth and at the muco-cutaneous junction of the nose, of a scabby and pustular nature on a reddish and inflammatory base. A few days later still a reddish cuff was noticed around the wrists "like the early stage of a bruise, as though someone had *seized* her by the wrists," then in patches (not noticed if symmetrical) on the back of the hands coalescing into one widespread dermatitis of the dorsal aspects of hands and fingers. The hands had not been noticed to be much swollen. July 9th: I saw her from this date until the time of her death. The rash on her hands had faded to a brownish tint, and at one point there was a tendency to pustulation. On the forehead and root of the nose were scattered patches of scabby roughness, not nearly so dark nor so well defined as on the hands, and showing no tendency to suppurate. She was gradually sinking into a "typhoid" state; the fever had subsided, but the pulse was rapid and very weak; the mouth was very sore; she was delirious, oblivious of the calls of nature, and her general condition was pitiable to witness. The peri-anal skin became denuded, and it was difficult to prevent the formation of bedsores, as the patient emaciated rapidly. On two occasions the medical officer on duty was sent for as she showed signs of collapse. It was at this point that Dr. Sambon first saw her. when she was in a state of muttering delirium with spasmodic muscular contractions, particularly of the face and hands. 15th: The urine examined on this date contained albumin. There was no active diarrhœa, but a tendency at times to constipation, at others to loose stools. At times the confusion was less marked, and she would speak intelligibly—e.g., she asked the nurse to give her "everything cold" and complained of thirst. 22nd: A fatal termination appeared inevitable some days ago, but the patient displayed great tenacity of life. Her general condition changed, the picture now being one of utter prostration- [illegible] y and rapid, the pulse slower, the cheeks of a [illegible] ccasionally speak an intelligible word, and she [illegible] on the 20th. The active muscular contract [illegible] stomatitis improved, the pustular condition about the mouth cleared up, the eruption faded somewhat, though the thickening of the skin was most noticeable, like wrinkled parchment. Figs. 1 and 2 show the condition of the eruption about July 17th. A small patch of skin, yellowish-brown in colour and thickened, appeared symmetrically on the ulnar side of the elbows, but this is not brought out [illegible] f the skin of the forehead is not [illegible] ere much less affected than the [illegible] response was obtained at any time. No notice was taken by the patient of the stimulus of a pin on the legs, but she felt and brushed away flies that settled on her face. Her condition did not now, or for some time pre- [illegible] tion. 29th: She became gradually [illegible] 'cropsy was made, at which I had [illegible] of Dr. S. A. Kinnier Wilson. The [illegible] as expected, almost entirely of a [illegible] arked nephritis.

Dr. Wilson is engaged in a complete pathological investigation of the above case, the results of which will be subsequently reported. The patient was not out in the open at any time while in this hospital, but was on one occasion only under a verandah which was protected from the sun.

Dr. Sambon tells me that he has ascertained that there is a stream at Palmer's Green which is simulium-bearing, and that the deceased patient frequented its neighbourhood.

It will be observed that, though with the onset of the stomatitis some fever appeared, the disease in this case ran for the most part an afebrile course. Professor Tanzi speaks of pellagrous typhoid as being associated with fever varying from 102° to 107° F., and as occurring usually only in extremely inveterate cases of several years' duration; but he says also that some cases which do not reach the terminal or demented stage die in a state of acute delirium.[3]

CASE 2.—C. D., a married woman, admitted on Feb. 12th, 1912, aged 46. Duration of insanity eight to ten weeks; the only cause assigned was worry.

History.—Born at Totnes, Devon. She had a mental breakdown when aged 23, and was at Colney Hatch Asylum. She went to New Southgate in 1881, and to Wood Green in 1908, where she has since lived. Her husband never knew her to suffer from sunburn or roughness of the hands, but after she was taken ill she had "blood poisoning and was very bad." He noticed then that "her hands and legs were in a very bad state, hard lumps formed on the back of the hand, and the skin was very rough and appeared to irritate" There was no vertigo, but headache was present, which was only relieved when she wore glasses.

State [illegible] h poor; slight cyanosis; temperature 97[illegible]; weight 8 st. 4½ lb. Knee jerks brisk; [illegible] specific gravity 1008; no albumin or sugar. She was acutely depressed, agitated, and resistive, would not converse, and was spoon-fed. It is very well remembered that her hands were at this time rough and the skin over the backs of the hands was thickened. She was in the habit of rubbing one hand with the other, and of picking her skin on different parts of her body.

August 5th: Figs. 3, 4, 5, and 6 represent the condition of the hands at this date, when she is in bed on account of a slight attack of diarrhœa. [illegible] the nostrils. On the fror [illegible] astoid is a small patch of [illegible] h shows a *little* branny [illegible] of the backs of the har [illegible] e eruption is on both sides just short of the first interphalangeal joint; the affected area is not of uniform appearance; in places the skin is a hard crust, shading into rough cracked patches which peel off leaving a raw surface, while on the forearm the condition suggests rather hide or parchment. On the front of the wrist, at the junction with the palm, and also at the upper limit of the eruption on the forearm, the margin is of a reddish colour, suggesting a more active inflammation. The palms, elbows, and feet are quite unaffected. Whenever the opportunity presents the patient picks at her hands, but she does not complain or give signs of any pain, her mental distress occupying her attention, as she fancies that she is very wicked and should be hanged. The urine now contains albumin and indoxyl.

This case also was seen by Dr. Sambon, who told me that the condition is a very good example of pellagrous dermatitis.

CASE 3.—E. F., a married woman, admitted on Jan. 8th, 1910, aged 37.

History.—Duration of insanity a few weeks. A history of insane heredity was obtained, and lactation and privation were offered as *exciting causes. The patient developed delusions to the effect* that she would be put in prison, became excited, and would have killed her baby had she not been prevented. She lived at Hornsey. No sunburn on the hands had been noticed by her friends prior to admission, and she had *not complained of vertigo.*

State on admission.—The patient's general health was indifferent. Temperature, 98·4° F.; pulse, 114; respirations, 26. Urine: specific gravity 1028, albumin present, no sugar; height, 4 ft. 10 in.; weight,

DESCRIPTION OF ILLUSTRATIONS.

FIG. 1.—Illustrates the pustular condition about the mouth and nose, and the non-pustular eruption on the dorsum of the hands in Case 1.

FIG. 2.—The anterior aspects of the wrists in Case 1.

FIGS. 3 and 4.—The back of the hands in Case 2.

FIG. 5.—Shows the comparatively uncommon extension of the eruption up the forearm, also Case 2.

FIG. 6.—The patch on the radial side of the anterior aspect of the wrist, also Case 2.

FIG. 7.—The neck and hands in Case 3.

FIG. 8.—The neck, also Case 3.

FIG. 9.—The fading V-shaped patch on the radial side of the wrist, also Case 3.

FIG. 10.—The back of the hands in Case 9.

FIG. 11.—The front of the wrist in Case 9.

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[3] Vide A Text-book of Mental Diseases, by Professor Eugenio Tanzi, chap. x.

6 st. 4 lb. Her mental condition would, I think, be described variously as stuporose melancholia, or by some as a form of primary dementia, and this has not changed materially since admission. She is silent, unoccupied, apathetic, has a rather fixed expression

larger flakes.

The photograph in this case was taken only just in time, for a week later the condition could only be discerned on close inspection.

This patient is now heavier than she was on admission (7 st. 2 lb.), and she has no confirmatory symptoms at present. Dr. Sambon refers to this patient as a pellagrin.[4]

In the case records of the asylum I found notes on the following case, extracts from which I give.

th Asylum

infer that

May 16th,

developed

l aspects of both hands." June 28th

ands, probably sunburnt." July 19th:

ght. Suffers much from sunburning."

The post-mortem notes of the above case refer to the blistering of the dorsal aspects of both hands, and pulmonary tuberculosis was found and given as the cause of death. The charge attendant tells me that he remembers the skin coming off "like a scald."

From the asylum records also I quote notes on the following case:—

from Wands-

ctive, chronic

ar.

ringworm in

diarrhœa. Temperature 99°." August 5th. "Gangrene of the lung supervened and the patient died to day."

The post-mortem notes of the above case refer to small patches of congestion of the mucous membrane of the intestine, and no longer speak of the dermatitis as tinea but as a marginal eczema.

I remember going to see this patient shortly before she died, and my recollections of her, and those of others who saw her frequently, leave me in no doubt that she was a very severe case, similar to Case 1 in many respects. The resemblance to sunburn was remarked in this instance.

When the question of pellagra was raised the following case was at once thought of, and I give brief extracts of the notes.

CASE 6.—K. L., female, admitted Sept. 8th, 1905, aged 20. There was a family history of suicide and epilepsy and the mental state was one of idiocy.

June 13th, 1907: "Very indifferent health, at times she gives evidence of intestinal trouble." Jan. 20th, 1908: "Looking better but has lost 1 st. 2 lb. in last six months." May 7th: "Scabies." August 7th: "Scabies recovered." April, 1909: "Is under treatment for small ulcers, result of blistering of her feet." Nov. 21st: "Is suffering

with 'foul discharge.'"

It is quite clear that this patient was profoundly ill at this time, for the staff remember her well, and it was not expected that she would recover as she did. The eruption was on the back of the neck and on the hands and arms, but no written note was made of its situation. The similarity *to sunburn was also remarked in this case. This patient had* prolapse of the rectum. I should not have thought of recording this fact, but that Dr. Sambon showed me some notes which had been sent to him relating to a private case, and I noticed that this patient had suffered from the same condition. The matter could not be further pursued as the patient accidentally choked herself and died on Oct. 3rd.

[*Note.*—A troublesome outbreak of scabies occurred in the asylum, and all suspicious skin conditions tended to be included under this heading. It is not unlikely that the entries of May 7th and August 7th in this case concealed a pellagrous eruption as a complication.]

CASE 7.—M. N., female. When admitted on Dec. 31st she was 37 years of age.

History.—Maternal epilepsy was known to exist. The patient's insanity dated from the age of 17. The mental condition was one of manic depressive insanity, in which the excited phase predominated and to which an element of confusion was added when she became seriously ill. The patient's sister informs me that she had lived at various times in North London, Devonshire, York-

September, 1910: "Her physical condition has suffered greatly of late. She has had stomatitis and diarrhœa." June 15th, 1911: "Is

continued the mental condition was better, but with its cessation the latter became worse again. August 19th: In bed, more small, loose stools. Oct. 19th: "Her condition has occasioned grave anxiety. The diarrhœa ceased, but she became weak, emaciated, very irritable, and difficult to nurse. *A troublesome dermatitis of the hands is only now beginning to clear up.*"

I should mention here that the notes of this case, as of others quoted, are partly statutory, and are not to be considered as a clinical report on the case such as might be expected in a general hospital; thus it is necessary to supplement them from memory.

The patient used to run about in the garden without a hat and became much burnt. The "sunburn," however, to our surprise, did not fade in the usual manner, and I was forced to the conclusion that it had been the starting point for a dermatitis associated with her

FIG. 12.

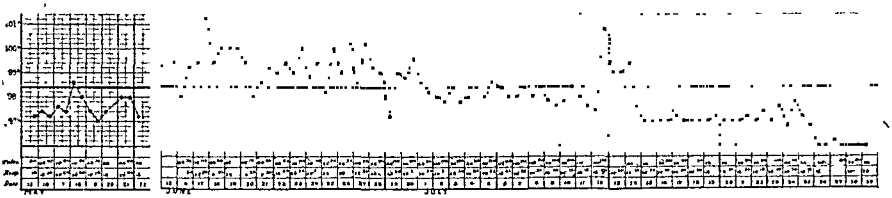

Chart of Case 1, giving temperature and pulse rate generally impaired health. Both hands became infected, pus burrowing under the thickened skin, until finally as this was shed a raw surface remained. We supposed the infection had been by the patient herself from a focus around the nose and mouth, which had an appearance almost identical with that seen in Case 1, Fig. 1.

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[4] Brit. Med. Jour., August 9th, 1913.

Nov. 1st, 1912: "She is in a most unhealthy state, nourishment is not absorbed it would seem. There is now albuminuria, and the temperature is subnormal and the patient becomes increasingly more feeble." 17th: "A week ago she gave some indications of improvement, but she became worse again and died this *morning*."

At the post-mortem examination of the above patient, very marked chronic nephritis, some pulmonary infarcts, and and a small, evidently terminal, empyema were found.

Case 8.—O. P., a widow, aged 74, admitted on April 1st, 1912, from the Edmonton Infirmary.

History.—Very scanty. She had had a previous attack at the age of 37 lasting eight months. Duration of present attack three months. She had some sort of "fit" in January, 1912.

State on admission.—General health feeble, there being evidence of cardio-vascular degeneration. Temperature 97·4° F., pulse 98, respirations 22. Mentally she was confused, restless, incoherent, irrational, and disoriented.

April 16th: "Syncopal attack." May 23rd: "Excitement is less marked, she had another syncopal attack." June 10th: "She recently sustained a burn on either hand as the result of the action of the sun. These heal very slowly as she will not keep on her dressings." 20th: "Is steadily losing ground physically and is more demented." July 2nd: "She rallied from another syncopal attack, but a day or so after her lungs became involved and she died to-day."

Post-mortem notes.—Extreme cardio-vascular degeneration, chronic nephritis, and bronchial catarrh.

We can well recall that the distribution of the so-called "sunburn" was on the dorsum of hands, including the fingers, and on the front of the wrists, closely resembling Cases 1 and 7 in appearance. The area on the back of the hands became infected, and the skin peeled off, leaving a raw surface like that of a dirty burn. The face appeared to be only deeply sunburnt, and there is no recollection of the details of its appearance; it did not peel.

To the foregoing eight cases, in which I feel sure the diagnosis of pellagra can be fairly made, I am able to add another.

Case 9.—A female patient in the Herts County Asylum, Hill End, who is, in my opinion, a pellagrin. Dr. J. Grimmond Smith, the deputy medical superintendent, very kindly permitted me to examine her on August 6th, 1913, and to have photographs taken of the hands and forearms, and these are reproduced in Figs. 10 and 11. The patient is of early middle age; she is the wife of a farm labourer and lived near Aldenham, Herts. She was admitted in May, 1912. Her bodily health is poor. She has, I am informed, recently had stomatitis, but this is much better. She has also had more than one attack of diarrhœa. She is in a state of mental confusion, is restless, depressed, has hallucinations of hearing, and requires tube-feeding. The eruption on the hands has the same distribution as in Case 2, but is less extensive, and the skin is not so indurated. The face, neck, and elbows are free from signs of the disease.

We have under observation at Napsbury several doubtful cases, and I was also shown a patient at Hill End Asylum, who was, I think, a slight case, but I propose only to refer to those already mentioned.

It is no part of my object to attempt to review the main features of this puzzling disease, if for no other reason than that has so recently been done by Dr. C. R. Box.[5] It may, however, be useful to discuss briefly some of the points which arise from the consideration of the foregoing cases:—

Sex.—Of nine cases all but one occurred in females. This preponderance amongst women accords with the prevailing opinion in America,[6] but I believe on the Continent a different view is held. Only the male patients at Napsbury are agricultural workers. I have been unable as yet to find one living undoubted pellagrin amongst them.

Age.—With the exception of Case 8 (aged 74), at the time when the disease was manifest, all were in early middle life (20–40 years).

Social condition and residence.—Case 7 was a private patient, and though in Case 3 privation was mentioned by the husband, generally speaking none of the patients could be said to be destitute, and they did not come from the lowest grades of society. In some instances the patients had lived so long in the asylum that their social condition was really that of the institution. So far as I can ascertain, none of these patients had ever lived abroad. When I have been sure of their various places of residence these are given, but it may be said that the patients were all Middlesex cases.

Diet.—The asylum dietary is liberal, and so far as I am aware no maize products, unless it be cornflour, are comprised within it. This fact, and the good hygienic conditions that obtain at Napsbury, militate against the deprivation theory as far as the asylum is concerned.

Type.—A very striking feature of the cases described in this article is their severity. It will be recalled that the earlier American cases are said to have been of a very grave type, more so than is now the rule. A fatal issue in Case 8 would have caused little surprise had there been no pellagra. Case 4 had, it is true, tuberculous lesions, but in Cases 1, 5, and 7 the unfortunate termination must be attributed primarily to the pellagra. Case 6 made a recovery that was quite unexpected, though it is possible that the choking which caused the patient's death not long after may have been associated with the well-recognised tendency to collapse in this disease. Case 3 is the only one of the series which is quite slight, and but for the extraordinary symmetry of the eruption would not have been included in this category.

Symptoms.—I have not attempted to diagnose pellagra unless some skin lesion was certainly noted, though I am tempted to describe one case, now dead, the features of which strongly suggested to my mind the "pellagra *sine* pellagra" described by several authors. In asylums, as is well known, dirty mouths and slight gastro-intestinal disorders are not uncommon, but in these cases the stomatitis has been of such an unusual character as to call for special mention in the notes, and the same applies to the diarrhœa, which has been free, however, from any of the more alarming features of so-called asylum diarrhœa. Albuminuria appeared in the late stage of the illness in Cases 1 and 7, was present on admission in Case 3, and is now present in Case 2; there was a trace at one time in Case 4. Unfortunately I cannot find data as regards some of the other cases. In no instance have I record of definite nervous as distinct from mental symptoms, unless one mentions the convulsive twitchings noticed in Case 1 and which were present in a lesser degree in Case 7 at one time. A very interesting question arises:—viz., To what extent was the pellagra in my series a factor in the cause of the insanity?

I will attempt to classify the cases as follows:—

Case 1.—Confusional insanity (exhaustion psychosis).
Case 2.—
Case 3.—
Case 4.—Primary dementia.
Case 5.—Chronic mania, to which was added the features of an exhaustion psychosis, when she became seriously ill.
Case 6.—Idiocy.
Case 7.—Manic depressive insanity with later confusional symptoms.
Case 8.—Confusional insanity.
Case 9.—I do not know what view Dr. Smith takes of this case, but it appeared to me to be a case of confusional insanity.

As it is stated that pellagra may exist in a quiescent or unnoticed state for years, one cannot come to any definite conclusion as to the question of *post* or *propter hoc*, but except in Cases 1 and 9, and possibly Case 2, I find a great difficulty in believing that the insanity was not quite independent of any pellagrous factor. The duration of the mental disease in Cases 4, 5, 6, and 7, the hereditary taint in several, and the other sufficient factors in Case 8, all support this view, and in Case 2 there had been a previous attack 20 years ago.

Seasonal incidence.—It would be strange if the following approximate dates could be explained by coincidence:—

Case 1.—Admitted May 15th; died July 29th.
Case 2.—Here the eruption appears to have been first noticed in the winter, and to have reached a maximum in July.
Case 3.—Eruption only noted in July; fading in early August.
May 16th; patient died July 31st.
; patient died August 5th.
October.
Case 8.—Sunburn noted early in June; patient died July 2nd.
Case 9.—Admitted May; eruption peeling early in August.

Time and mode of origin.—Except that in Case 2 we have the husband's history of the roughness of the hands before admission, there are no facts, so far as I am aware, which are inconsistent with Cases 1 to 8 having contracted the disease while here at Napsbury, but if such were the case the incubation period in Case 1 must have been exceedingly short, and the mental disease due to some other cause.

As regards the distribution of the cases in the hospital, Cases 5 and 6 occurred at the same time, and were in contact with one another. Case 4 was isolated by his sex and mental state. The three patients were in the same block. Case 7 would appear to have contracted the disease not later than 1909, and Case 8 came in contact in the same ward with

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[5] Vide Practitioner, June, 1913.

[6] Vide Pellagra, by E. J. Wood, p. 122.

Case 7 in 1912 Case 3 was also associated with Case 7 and with Case 2 Case 1 occupied a bed in the ward where Cases 7 and 8 had died in the previous year All these patients, however, were in the hospital block and separated from Cases 4, 5 and 6

My short acquaintance with this disease cannot permit me to offer any opinion as to its mode of origin It is difficult not to be carried away by the enthusiasm of Dr Sambon for his very attractive simulium theory, which he supports with so many interesting and impressive facts While, however, it is comparatively easy to associate the life history of any individual patient in this country, when *means of transit are so plentiful, with some or other river*, it is almost impossible to find a case that can at no time have been in the near neighbourhood of a simulium bearing stream In this connexion I may mention that Case 9 (the Hill End Asylum patient) comes from a village but a short distance from the continuation of the stream (river Colne) that a few miles higher up bounds the Napsbury estate The mean distance from the river to the asylum as the crow or the simulium, might fly may be taken at about 700 yards Mr Amoruso, on behalf of Dr Sambon, searched the river near the asylum on August 14th He found larvæ and pupæ of simulidæ, but was unable to capture any fly on this occasion

One further fact I must mention for what it is worth Dr Sambon told me recently that an Italian peasant once said to him, "Our pigs have got this disease which you are
e was a herd of pigs at
I asked the farm bailiff
have He volunteered
ntage of them had had
skin affections associated with soreness about the mouth that this complaint appeared mostly in the spring, and that he had not met with it before he came to Napsbury but had heard of it as occurring elsewhere, but more so in institutions than in rural districts generally

This paper has been hurriedly put together but with the object indicated in the earlier paragraphs I had scarcely finished it when my colleague Dr A O Neill called my attention to two more cases in this asylum one of particular interest and I will briefly mention these

CASE 10 —Female single admitted June 1912 from the Edmonton district aged 39 First attack duration five days Cause unknown no neuropathic history Temperature 97 6°F pulse 88 respiration 22 height 5 ft 5 in weight 7 st 1 lb Urine specific gravity 1026 acid albumin present no sugar

State on admission —The patient was resistive impulsively violent
[illegible]

profuse
There

Clinically this case is remarkable for the rapidity with which the most profound mental degradation has developed

CASE 11 —Female married admitted June 21st 1912 from the Middlesex County Asylum at Wandsworth age [illegible]

History —There is a history of insane heredity She became insane 21 years ago

State on admission —The pat
appears to be in good health
the urine Her nurse tells me
the hands is rough
ranny desquamation
ere is no doubt of the
he heading of chronic

Each day, I am *told*, brings to light fresh cases in different parts of England It is not difficult to imagine the possibilities to which their appreciation may lead Should the hopes that I imply be fulfilled in the future, psychiatry in this country will owe much, it seems to me, to Dr Sambon, to whose papers in 1912 and 1913, and to whose energetic pioneer work, the general recognition of this disease in Great Britain will be so largely due

I wish, in conclusion, to thank Dr Rolleston for his permission to publish these cases, and my colleagues for much kindly assistance

I am indebted to Mr Chas G Rolliston of Napsbury, for the photographs which illustrate this article

Napsbury

NOTES OF A CASE OF PELLAGRA

BY J W E COLE, M A , M B B C CAMB , M R C S ENG , L R C P LOND , D P H R C P S LOND ,

ASSISTANT MEDICAL OFFICER OF BETHNALL HOUSE ASYLUM

I HAVE the kind permission of Dr J K Will, medical superintendent of Bethnall House Asylum to communicate the following notes of a case of pellagra

A woman, aged 25, was transferred here on July 3rd Three days after admission a shiny redness appeared on the bridge of the nose and rapidly spread over the malar regions, forehead, and around the mouth, extending about 1½ inches down the chin I saw her on July 21st The rash on the face
yellowish brown, scaling epidermis
clearly defined rosy red margin
cal in its distribution over the areas mentioned above The conjunctivæ were healthy and the eyelids themselves were unaffected There were one or two small islands of healthy skin on the forehead It extended right up to but did not encroach upon the scalp There was no œdema There was a small patch on the lobe of the left ear the right ear was unaffected On the right side of the neck was a patch 1 inch wide, extending 3 inches round the neck , on the left side of the neck was an irregular patch extending up the neck rather than around it The remaining skin on the face and neck was deeply and evenly pigmented, but whether more so than she would normally exhibit I cannot say On August 8th she was placed in bed in a comparatively dark corner of the ward By the 11th the desquamation was practically complete The reddened edges were still well marked and a few adherent flakes gave a powdery appearance to the affected site On the 12th she again went into the open air and now, August 17th the whole of the area is again assuming a shiny red appearance Had I not read the recent articles on pellagra I should have made a diagnosis of severe sunburn, vaguely attributing the fact that she became so affected when others escaped to some inherent peculiarity

Coincidently with the facial symptoms parts of the hands became deeply stained to a purplish brown The affected area is continuous and contains no healthy patches It covers roughly the backs of the hands and fingers and by a band one inch broad the entire area of the wrist The ends of the fingers from the roots of the nails are entirely free There is a distinct limiting line along the ulnar edge of the hand and fourth finger It is definitely limited by the lines of contact of the fingers when extended The limit on the radial edge of the first finger is not so definite but when the thumb is adducted against the radial edge of the palm there is a definite line on the back of the hand where it comes in contact with the thumb The back of the thumb is affected in the same way as the fingers On the wrist band the pigmentation is less deep and its upper edge fade off into the normal skin of the arm

Desquamation has been less rapid on the hands than on the face A striking feature is the fact that the fine crossing lines of the skin stand out as a glistening network on the pigmented area Round the wrist there is a tendency for desquamation to occur in patches, causing islands of healthy skin to appear surrounded by a frayed edge of dry epidermis The skin feels very coarse, harsh and dry She occasionally rubs her peeling hands but neither on the face nor hands has the eruption appeared to be very irritable Although the palms were unpigmented, desquamation is appearing along the palmar folds Very slight redness occurred on the lower surface of the elbow but *definite desquamation is now* present Throughout there has been a goose flesh condition of the skin of the legs but the skin of the feet and of the rest of the body has been normal The nipples are very deeply pigmented. On admission the tongue was furred and the breath was foul. Apart from this there has been no affection whatever of the mouth.

Since admission she has had diarrhœa; the stools have been liquid but not frequent. Occasionally they contained streaks of blood and often undigested food. The pupils are equal and react normally. The knee-jerks are exaggerated. The plantar reflex is very active and flexor in character. The abdominal skin reflex is active. No indication of anæsthesia or hyperæsthesia is obtainable. The heart is irregular in its action. Mentally she is in a condition resembling katatoniac stupor. She lies, sits, or stands wherever she is placed. She cannot be got to answer a simple question, although she evidently understands what is said and can observe what is going on around her. Occasionally she indulges in a slight smile of amusement. She exhibits negativism and tendency to flexibilitas cerea. She has to be dressed, undressed, washed, &c. She is wet and dirty.

I have been able to obtain but a scanty history. The only relative available is a sister who was not living at home when the patient first was taken to an asylum. Her childhood was passed at Chertsey-on-Thames, Shepperton, and Shefford (Beds.). She then went into service at Forest Hill for a short time, left her situation, and went to live with a relative at Stony Stratford. From here, after a very short interval, she was taken to Stone Asylum, aged about 19. The medical superintendent has informed me that here she had an attack of mania, but exhibited no symptoms or signs of pellagra. She was out of an asylum for only a short interval before recertification. An elder sister is stated to have developed fits when about 20. She died about five years ago in Hanwell Asylum after three years' residence. She is stated to have suffered from diarrhœa before and after admission. My informant has no recollection of the patient ever having had sunburn, eczema, or any skin trouble, but describes her as having been a stout girl (she is now very thin) with a bright (red) complexion.

On August 11th Dr. L. W. Sambon, accompanied by Dr. Sturli of Trieste, very kindly visited the patient, and both agreed with the diagnosis of pellagra.

THE EFFECTS OF THE DUCTLESS GLANDS UPON DEVELOPMENT.[1]

BY HASTINGS GILFORD, F.R.C.S. ENG.

DESPITE the immense amount of work which is now being done upon the ductless glands we still have to go to clinical and pathological evidence as the basis of our knowledge. Experiment can so far only teach us what to expect when a gland is defective: the whole of our information upon the results of excessive action comes from pathology. As to the direct investigation of the normal gland, research has not yet provided data sufficiently reliable to enable us to arrive at satisfactory conclusions. These two kinds of research, the experimental and the pathological, tend to run along lines which are either parallel or divergent, but can seldom be brought to a focus. Those who approach the subject from the laboratory side tend to lose themselves in the mazes of abstract science; those from the hospital side tend to come prematurely to conclusions which are not scientific. If we are to be practical we must go to pathology for most of our information. The normal action of these glands is so delicate, so complex, and so abstruse that we can best judge of what happens in health by drawing inferences from that which takes place when their action is magnified or diminished by disease. I feel, therefore, that I need make no apology for dealing with my subject mainly from its pathological aspects, leaving the experimental and physiological sides to those who are so much more competent. I trust that we shall have each aspect touched upon, for Cushing and his school have shown how much may be accomplished by combining clinical, operative, and pathological study in the same research.

The subject we have to deal with is that of the inhibition or reinforcement of such correlations of the body as are carried on through the medium of chemical secretions or hormones. Probably the first series of correlations is set going by the mere mechanical penetration of the germ cell by the sperm element. At any rate, it has been shown by Bataillon that the unfertilised eggs of a frog may be started on a career apparently in no way different from that of normal fertilisation by means of needle puncture alone. Correlations once set going, for a time continue automatically, as in plants, apparently without the stimulus of any specialised secretion. In whatever way correlations are regulated before the development of the ductless glands it is highly probable that these same methods continue in force to a varying extent even after a more perfect mechanism of adjustment has been completed. Indeed, we see that throughout life there must be some faculty of adjustment apart from those initiated from the nervous system and from the ductless glands, for how otherwise can we account for purely local correlations? We have only to notice what happens when part of a long bone is destroyed in infancy to be convinced that organs and tissues may accommodate themselves to emergencies without the intervention of a central controlling mechanism. So also is it difficult to understand the adjustments which take place in achondroplasia, in rickets, and even in microcephaly unless we fall back upon some explanation which leaves out the ductless glands. We suppose, therefore, that though the ductless glands are of great importance they are only a part of the machinery of adjustment.

In considering the problem of the disorders of these organs and the light they throw upon their normal action we are immensely aided by the advanced state of our knowledge of the thyroid gland. This furnishes us with the warning that we must not be too exacting in our demands. It shows that the inaction of a gland at one stage of development may produce results which superficially differ from those in another stage of development, and that those due to defective action are by no means always contrary to those due to excessive action. Thus the infantilism, dwarfism, and sexual stagnation of cretinism cannot be contrasted with any premature senile decay, gigantism, or sexual exaltation in Graves's disease. Neither is there any orbital change in cretinism opposed to the bulging eyes of Graves's disease. It seems clear that the part allotted to the thyroid in the complex working of the ductless gland system is to stimulate the metabolism of the whole body. A gland in certain respects in inhibitory relations with the thyroid gland is the thymus, which we regard as a lymphoid structure and part of the *lymphatic system*. There is a striking contrast between the human being in infancy and childhood, when lymph tissue is at its highest development, and the condition met with in Graves's disease. This contrast is accentuated in lymphatism, where the special type qualities of the infant are magnified. Destruction of large tracts of the lymphatic system by degeneration, as in Hodgkin's disease, gives rise to a syndrome in which extreme emaciation and debility and katabolic excess may be contrasted with the stolid fatness of lymphatism and with its pallor and increased muscular growth.

Though Berthold's experiments in 1849 seem clearly to indicate that the primary *sex glands* act upon development by means of a secretion, it cannot even now be said that the evidence is convincing, in spite of the facts which have been accumulated since Berthold's days. Extracts from these glands fail to produce definite results, and the occasional occurrence of opposite sex characters in pseudohermaphroditism are very difficult to explain by any theory of hormones. The fact that correlations take place between somatic and sex characters in plants without hormones shows that hormones are not essential. The secretion theory, moreover, will hardly account for the extraordinary improvement which results from the removal of the ovaries in osteomalacia, for most careful examination of the ovaries has failed to reveal evidence of the correlation being due in any way to alterations in ovarian structure.

Research on the physiology and pathology of the *pituitary gland* has of late received an impetus from the work of Hochenegg, Cushing, and other operative surgeons. This work tends, on the whole, to support the opinion, first advanced by Tambourini, that acromegaly is due to overaction of the anterior lobe in the first place followed by degeneration and underaction. Yet it must be confessed that it is not easy to reconcile some of the cases with this view. Thus it is difficult to understand how an adenoma or a malignant growth, as in Hochenegg's case, deficient in chromophile cells, c[illegible] that in his instan[illegible] of the acromegaly [illegible] with which the acr[illegible] operation. Then, [illegible] the result of hyperplasia, why are the initial symptoms so often largely of the kind we attribute to hypoplasia, as in Professor Schloffer's case? I know that such cases are accounted for by supposing that the pressure of the enlarged hypophysis shuts off its own secretion. But why, then, do the much larger and more rapid growths termed malignant give rise to the most characteristic and pronounced form of acromegaly? If lesser degrees of pressure interfere with the issue of hormones, why are greater degrees of pressure not so obstructive?

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[1] Abstract of a paper read in the Section of Diseases of Children at the International Congress of Medicine on August 9th, 1913.

Then, questions arising out of Froehlich's infantilism are by no means settled. The well-known experiments of Aschner, Handelsmann, and Horsley tend to show that hypopituitarism gives rise to no morbid effects, whereas Biedl, as well as Cushing and his assistants, seem to prove pretty conclusively [illegible] delay of developm[illegible] psychical disturbar[illegible] symptoms which we associate with Froehlich's infantilism So far the preponderance of evidence seems to be with Cushing and Biedl, who, moreover, bring to their support a wealth of important clinical and operative details. At the [illegible] cases on record resembling those described [illegible] of [illegible]ry origin. These seem to show that hypopituitarism, though a highly important cause, is only one of the causes of infantilism with obesity, and that to constitute Froehlich's infantilism it is necessary that there should be direct and definite evidence of a pituitary tumour or of a dwarfed sella turcica. Among the disorders attributed to defective action of the hypophysis are ateleiosis and progeria.

Ateleiosis is an essential infantilism of Brissaud's type. It has a striking individuality, and is clearly to be distinguished from myxœdème fruste. It is not amenable to treatment by thyroid extract, sometimes occurs in two or more members of the same family, but not in association with cretinism or myxœdema. There are two forms: the asexual, in which none of the primary or secondary sex characters is developed; and the sexual, in which, usually after some delay, the sex organs develop, so that in some cases these ateleiotics have borne children. I have myself described one such case in which the intimate relation between these two forms of ateleiosis was proved by the fact that the father was of the sexual variety and the son of the asexual. In a case of ateleiosis fully described by Arnold Paltauf there was a tumour of the pituitary body. On the [illegible] a skeleton in the [illegible] in another skeleton [illegible]ndon, and in a case [illegible] examination, there [illegible]ur or insufficiency. [illegible] on to suspect the influence of hypopituitarism. It has been noticed that most of the characters of progeria are the antitheses of those which appear in acromegaly. This comparison has been insisted upon by Professor A. Keith, who in the course of a study of [illegible] from a case of this disease[2] showed that in almos[illegible] were contrary to those of [illegible] to read his paper without being convinced that the one disease is opposed to the other. In only one point was the evidence at fault; the sella turcica showed no indication of there having been any tumour or deficiency of the hypophysis. On the other hand, M. Variot and M. Pironneau, who have described a case, believe from the clinical symptoms that progeria is a manifestation of suprarenal inadequacy.

The glands most closely concerned with the pituitary are apparently the sex organs. Indeed, as we well know, it is the opinion of Freund that acromegaly is started by changes in the ovaries or testes leading to secondary enlargement of the hypophysis. In Froehlich's disease there is conspicuous sexual defect, so also as a matter of fact is there in acromegaly, not only as the condition advances, but, indeed, often throughout the course of the disease. Possibly there is danger of attaching too much importance to this symptom, seeing that sterility is a common feature of so many chronic [illegible] Generally speaking, serious [illegible]ny important organ tends to [illegible] but racial death. Thus the various forms of chronic mental disease, obesity, diabetes, pernicious anæmia, leukæmia, achondroplasia, as well as many other disorders, are apt to be associated with hypoplasia or degeneration of the sex organs. It is therefore not improbable that the sterility of acromegaly and of pituitary obesity is no more than the expression of a common biological law. This law is apparently in operation in all the disorders affecting the ductless glands—suprarenal, lymphatic, pancreatic, thyroid, sex—and is shown not only in those cases in which there is genital hypoplasia but also hyperplasia, *for even where there is sexual precocity or overgrowth* it is not associated with an increased fecundity, but the reverse. This sterility seems to be the expression of a generalisation well known in genetics where all useless extremes or mutations, whether on the side of excess or of defect, bring with them the means of their own automatic extinction.

In the *suprarenal system* we meet with another example of a double organ with attendant satellites, and this fact more than doubles the difficulties of coming to conclusions as to the physiology of that gland. It seems clear that the phenomena of Addison's disease are the result of grave suprarenal inadequacy, for it has been shown by Rolleston that similar symptoms occasionally arise when the suprarenals have been in a state of hypoplasia or of fibrous degeneration. But it is impossible to say what share is taken by the cortex and what by the medulla in this malady. This difficulty in separating the functions of the two parts is apparently not so great when we come to the subject of excessive action. Cases which have been described by Bulloch and Sequeira, by Linser, by Shattock, and by Guthrie and d'Este Emery of sexual and skeletal overgrowth with obesity in the female and of similar overgrowth with sex precocity and hirsuties in the male are so often associated with overgrowth or tumours of the adrenal cortex that a causal relation between these conditions seems fairly evident. But if this is the case Czerny's five cases of hypoplasia of the medulla with hydrocephalus do not seem quite in keeping. Moreover, in Marchand's case a cortical tumour was found with emaciation. Sexual precocity also occurs in association with tumours of the ovary, of the testes, of the thymus, and of the pineal glands. We are puzzled again as to how a [illegible] excessive secre- [illegible] having given rise to no special symptoms. The situation bristles with so many difficulties that we are driven to the conclusion that there can be no direct or causal connexion between precocious gigantism or sexual precocity and tumours of the adrenal cortex. At the same time their frequent association points to some correlation between the organs concerned. Spontaneous overgrowth of the reproductive apparatus is apt to be associated with anomalies of growth or of development *of the adrenal cortex*, apparently for the same reason that the developmental errors of the fœtus occur together. They are not in the relation of cause and effect, but are the expression of some mutual understanding or correlation between the respective organs. They serve as an example of the importance of the sexual system in the correlations of the body.

By studying these extremes we arrive at some sort of conclusion, however hazy, as to the normal action of the glands in question. We find that by virtue of their secretions, or in some more cryptic manner, they preside over certain correlations of the body. These correlations are by no means rigid, but are, indeed, exceedingly variable, and *this* variability is most apt to be shown when circumstances are abnormal. The adjusting mechanism *of development* is not only flexible, but is more or less reciprocal, so that a *ductless gland both influences development* and is itself influenced by the changes of general development.

In the harmony which is produced by the concerted action of the ductless glands we have reason to suppose that the leading part is played by the thyroid. This supplies a stimulus for the metabolism of the body as a whole. *During* infancy and childhood, when it is most important that the fires of metabolism should be controlled, the influence of the thyroid is checked by the thymus gland, by the lymphatic system in general, and perhaps by the pineal gland. These also bring about that delay of sexual activity which is so essential to the proper maturation and stability of the somatic faculties. Probably the first to break through this cordon of conservative influences is the adrenal system which awakens the dormant sexual organs and hastens the growth of the muscular and skeletal systems. At about the same time the skeletal system is still further stimulated by a secretion from the pituitary gland. This secretion quickens the development of every organ in the body, including the sex organs. These latter now ripen apace, and assisted by the combined action of the ductless glands, some animating, others restraining, carry the development of the body in waves and tides to its flood.

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[2] THE LANCET, Feb. 1st, 1913, p. 305.

Reading.

MILITARY EXPERIENCES OF TRAUMATIC ANEURYSMS.[1]

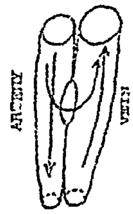
BY DR. V. SOUBBOTITCH,[2]
SENIOR SURGEON, BELGRADE STATE HOSPITAL; LIEUTENANT-COLONEL IN RESERVE, SERVIAN ARMY.

BY traumatic or spurious diffuse aneurysm we mean an injury which produces an extensive and diffuse extravasation of blood into the tissues; by circumscribed traumatic aneurysm, that in which the extravasation is limited by a definite wall in a sac-like manner. In the case of arterio-venous traumatic aneurysms we may use, in place of the term "aneurysmal varix," that of *direct arterio-venous aneurysm;* in place of "varicose aneurysm," that of *indirect* arterio-venous aneurysm; with the addition of the word *diffuse* when there is a diffuse extravasation taking place through large or numerous openings, or *circumscribed* when there is a limited perivascular extravasation. There are, however, also traumatic arterio-venous aneurysms in which there is no appreciable perivascular extravasation.

I wish briefly to report the cases of traumatic aneurysm which have occurred up to the present time in our military hospitals in connexion with the recent Serbo-Turkish and Serbo-Bulgarian wars. These cases were treated by ligation or by suture by 16 different surgeons. Of these, ligation of large vessels was performed on 41 arteries and 4 veins, 45 in all. Partial suture was performed on 17 vessels, 8 arteries and 9 veins. Circular suture was employed on 15 vessels, 11 arteries and 4 veins. The total number of vessels sutured was 32, comprising 19 arteriorrhaphies and 13 sutures of veins. Altogether, therefore, operations were performed upon 60 arteries and 17 veins—that is, upon 77 of the greater blood-vessels. These operations were performed upon most of the large vessels of the body; the most common seat of operation was the femoral artery, which was tied 22 times and sutured 11 times. These cases occurred among 20,000 wounded, and doubtless there were other cases of which we have not yet received any report. I should now like to make a few observations on these cases.

Not uncommonly these aneurysms first became apparent several days after the infliction of the wound, often not until after the lapse of one to two weeks, or even later still. The wounded, who up to that time had complained of nothing, then developed the following symptoms: pain, abnormal sensations (paræsthesia), worse in the affected limbs, and swelling of the limb. Now and then the pulsating swelling developed very gradually without any special symptoms, with so little trouble, in fact, that the existence of the aneurysm was sometimes at first entirely overlooked, even by experienced surgeons. The swelling that resulted from the blood extravasation was sometimes small; on the other hand, it was sometimes enormous, especially when resulting from diffuse extravasation. The amount of pulsation was by no means always uniform. Secondary hæmorrhages were by no means rare; often they were very profuse and sometimes even led to a fatal issue. A serious complication was infection of the extravasated blood. The form and size of the wound in the vessel itself varied a good deal. In the base hospitals, complete transverse division of the vessel was seldom observed in cases of uncomplicated injury to the vessel. Generally there was a greater or lesser defect in the circumference of the vessel, a broad or narrow strip of the wall remaining intact. It was not uncommon to see two holes in a vessel, one on either side of its lumen.

Of especial interest were the arterio-venous traumatic aneurysms in which the well-known characteristic thrill was observed. Sometimes I noticed that this sign easily led to error in the exact localisation of the seat of lesion. The thrill ought not to lead to such an error. The upper limit of the thrill on the cardiac side does not indicate the situation of the communicating aperture in the blood-vessel. It must not be concluded that the thrill begins at the site of the injury and extends thence peripherally. Much more often it happened that the thrill beginning at the site of lesion extended centrally towards the heart along the vein and peripherally along the artery. In the direction of the heart the thrill often extended to a considerable distance. In one case of direct traumatic arterio-venous aneurysm of the external iliac artery I was able clearly to trace the characteristic thrill on the abdomen of the injured man as far as the liver and behind up to the lumbar region, while on the thigh it descended as low as the upper border of its lower fourth. In cases where both wounds of entrance and of exit have existed and which at the time of operation are often completely healed, and are necessarily covered up by iodine paint or other dressings, I recommend the operator to mark clearly, by means of catch forceps inserted into the skin, the exact position of these wounds, so that the exact situation of the wound in the vessel can be accurately located. It must, of course, lie directly between these two pairs of forceps. Occasionally, in cases where the vessels—an artery and a vein—were bound together with cicatricial tissue and where an aperture of direct communication existed between them, I noticed that the peripheral portion of the artery was perceptibly narrower than the proximal. More remarkable was the condition of the vein, which, as a rule, was considerably larger on the proximal (cardiac) side of the injury than on the peripheral. In the lower extremity especially it was evident that a not inconsiderable portion of the blood stream was diverted from the artery, not into the valvular peripheral lower portion of the vein, but into its central portion, thus being sucked upwards towards the heart (see figure). This explains the transmission of the thrill upwards along the course of the vein, towards the heart.



The dissecting out of the vessels is often rather tedious and requires patience. In certain cases of diffuse hæmatoma in which the blood has come from a simple hole in the vessel it is not necessary to make any exposure of the vessel by dissection above and below the wound. It is sometimes sufficient to perform a simple suture of the edges of the aperture. But in the case of arterio-venous aneurysms the artery and vein must be dissected away from each other sufficiently to separate completely the blood stream of each. Then resection, suture, or ligation can be performed as seems best. It must be remembered that free bleeding from the peripheral end of the artery is a sign that the collateral circulation has been well established. Suture is certainly the most difficult and tedious proceeding, and is undoubtedly not the right treatment in all cases; nevertheless, it appears to be efficacious and to be indicated not only in those cases where it is absolutely necessary, but in others where it can be easily and aseptically carried out.

I cannot here discuss the question of technique. If it is possible to retain strips of the vessel, preserving its continuity, this may be done with advantage by putting the stitches into the wounds of the vessel wall in a transverse direction. In general an otherwise healthy vessel appears to stand dissection, if not too prolonged, by no means badly. The hæmatoma must be removed, the bleeding vessels dealt with, and the cavity drained, after complete closure by suture of the incision wound, by other openings specially made for the purpose. In these cases secondary hæmorrhage may occur after several days and be very serious. No secondary hæmorrhage has occurred in our cases of suture.

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[1] A paper communicated to the Surgical Section of the Seventeenth International Medical Congress on August 9th, 1913.

[2] I am indebted to my friend Mr. James Berry for kindly translating this paper into English.

In one case of lateral suture of the popliteal vessels progressive gangrene of the foot occurred, evidently from emboli due to thrombus. The large number (5 cases) of gangrene of the leg following deep ligation of the femoral (3) and popliteal (2) arteries is very striking. The early surgeons were already acquainted with the danger of such ligation. On seeing, some months later, cases that have been operated upon, we find not infrequently, both in cases of ligation and of suture, greater or less interference with functions, such as muscular weakness, paræsthesia, œdema, &c. On the other hand, we find some quite ideal cases.

When should an aneurysm be operated upon? Immediately, of course, in those cases where rupture and hæmorrhage are threatening. In other cases we see sometimes retrogression and even cure without any operation being undertaken. I myself saw a few years ago a very large, tense, diffuse traumatic aneurysm due to punctured wound of the femoral artery in its upper fourth. The wound was already healed, but I feared evil, and strongly recommended operation. This the patient refused. A colleague, however, injected gelatin, and the aneurysm disappeared.

We know that many aneurysms are cured by non-operative treatment, especially by well applied digital pressure, but these proceedings are difficult to carry out in military hospitals in time of war. Where the conditions make it possible non-operative treatment should be attempted. I have myself tried injections of gelatin on several occasions for our wounded, but only with transitory success. If hæmorrhage threatens, if the swelling increases, if the pain is severe, if there appears no tendency towards retrogression, then it is certainly better to operate than to wait.

Arterio-venous aneurysms should be operated upon, as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble. A certain amount of preliminary treatment is useful. It is especially desirable, when there is much swelling, that the limb should be elevated for a time in order to reduce the swelling, if the conditions permit of this. If operation is undertaken early, within a few days of the injury, the walls of the vessel will probably be found soft and friable, and the stitches will tear out easily. On the other hand, with later operations, three to four weeks after the injury, cicatricial changes are often found which render the dissection to a certain extent difficult. If there is extensive extravasation of blood into the surrounding tissues the hæmatomata should always be removed. Simple ligation of the afferent artery, without removal of the clots, may in certain cases cut off the circulation completely and thus produce gangrene. In some cases local anæsthesia is sufficient.

The localisation is often more easy if the operation is performed without the use of an Esmarch's bandage. We did most of our operations without it. Nevertheless, when this is possible, the bandage may be laid loosely round the limb in readiness for use if required. Perhaps the damage to the vessels is also less if Esmarch's bandage be not employed. If violent hæmorrhage suddenly occurs, as it often does while the dissection of the vessels is being carried out, it is not always easy to bring the bleeding points quickly into view. It is frequently possible with surprising rapidity to feel and to close with the finger the hole in the vessel from which the blood is flowing and which is frequently quite large. It is scarcely advisable to draw far-reaching conclusions from a somewhat small collection of cases. We must, however, remember that cases of this kind are only to be seen in any number in military hospitals in times of war, and experience of this kind is fortunately not common. In the future may it be rarer still!

CORNWALL COUNTY COUNCIL AND TUBERCULOSIS.—The Cornwall county council has decided to apply for sanction to borrow £3000 for the provision of a sanatorium for pulmonary tuberculosis for the county. It is proposed to purchase Watergate Bay Hotel, which is situated about two and a half miles from Newquay, and to acquire 12 or 14 additional acres of adjoining land. The building will provide accommodation for 60 patients. The cost of the entire scheme will be about £7000, and of this sum the local Government Board will provide three-fifths and the Cornwall county council the remaining two-fifths.

THE VALUE OF ANOCI-ASSOCIATION (CRILE).

BY J. HENRY CHALDECOTT, L.R.C.P. LOND.,
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AND

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SINCE the publication of Dr. G. W. Crile's paper on this subject in THE LANCET of July 5th, p. 7, the method advocated by him of operating under a combined general and local anæsthesia has been employed at St. Mary's Hospital in a number of cases. The fact that it has been successfully carried out by several different surgeons, none of whom had had any previous experience of the technique, is sufficient evidence of the practicability of the method, and of the ease with which it can be adapted to the work of a busy London hospital.

In this preliminary communication we are publishing details only of the cases in which it was used for severe operations, or when the patient's condition before operation was extremely bad, as we wish to draw special attention to what appears to us to be the most valuable characteristic of anoci-association—viz., its power of minimising, and in some cases of actually abolishing, post-operative symptoms. Of the 11 abdominal cases reported only one was sick (very slightly), and this patient had had a little open ether during induction. It will be noted that two of the patients were women of over 80 years of age, one of whom had her gall-bladder removed for carcinoma and impacted gall-stones, and the other her gall-bladder opened and drained for acute cholecystitis. In spite of their advanced age neither of these patients had any post-operative symptoms, and they experienced so little discomfort that they did not know until their wounds were dressed that the operations had been performed.

In case No. 10 the operation was not severe, but the patient was desperately ill from ulcerative endocarditis and popliteal aneurysm, and could certainly not have been anæsthetised with chloroform or ether without very grave risk. She was in such a nervous and irritable condition that an operation under local anæsthesia alone would have been impracticable, and her leg was so acutely tender that it is doubtful if a gas and oxygen anæsthesia by itself would have been sufficient. This patient was told that she was to have a little gas to have her leg examined and rebandaged painlessly, and under the combined gas and oxygen and novocaine anæsthesia her femoral artery was tied, and the administration of gas and oxygen continued until she was back in bed. This patient had no post-operative discomfort of any kind, and only realised that an operation had been done when the stitches were removed about a week afterwards.

Case No. 6 was collapsed and almost *in extremis* when operated on, and would probably have died within a few hours had there been any additional shock from the operation or post-anæsthetic vomiting.

On the part of the surgeon success seems to depend upon the use of a sufficient quantity of novocaine for very extensive infiltration and upon gentleness in manipulation. When, as a result of sudden or rough handling, rigidity of the abdominal muscles occurs during the operation, it has been found that further injection of novocaine into the extraperitoneal tissue usually causes almost instantaneous relaxation. Exploration of the viscera with the hand, rubber-gloved or naked, is well borne, and gentle gradual traction on mesentery is not followed by rigidity.[1] Gauze and linen peritoneal cloths are not well tolerated, and we have noticed this especially when they have been placed in relation to parietal peritoneum, and it may be that rubber packs could be used with less irritating effect. In sewing up the parietes relaxation has been obtained as good as, and in some cases better than, with chloroform anæsthesia, but at this stage especially gauze pads have seemed to cause rigidity, and immediate relaxation has followed their removal.

From the anæsthetist's point of view the difficult period is before the injection of the novocaine, when the patient is being moved about and placed in the necessary position for the operation. After the infiltration of the novocaine his duties are very much lightened, even with the type of patient who would be most difficult to anæsthetise with gas and oxygen alone. The anæsthetist's responsibilities are confined to keeping the patient unconscious, motionless, and breathing as quietly as possible. He is not called upon, as during a chloroform or ether administration, to deepen anæsthesia in order to produce muscular relaxation, the relaxation depending entirely upon the local anæsthetic, for which the surgeon is responsible.

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[1] Crile: Seventeenth International Congress of Medicine, Section VII B., August 9th, 1913.

It is usually possible in long operations to work with from 8 to 10 per cent. of oxygen. If cyanosis occurs with this percentage of oxygen it is generally a sign that the novocaine infiltration is insufficient, or that undue roughness is being used, causing reflex interference with the breathing. It is, of course, essential for the anæsthetist to ascertain before induction if the patient is a mouth breather, and if so, to insert a mouth-prop, as he will find it very difficult to do so, should the necessity arise, when the operation is in progress. An objection to the method has been raised that it lengthens the duration of operations. This has not been our experience as a glance at the appended table will show. Only a few extra minutes are occupied by the infiltration of the novocaine, and these are saved by the comparatively rapid induction of the general anæsthesia; but, in any case, the objection is not a very sound one, as a little additional time spent over an operation is of no importance if the net result, as shown in the absence of after-effects, is so strikingly good. So far we have not found that the infiltration of the novocaine and urea has had any effect on the healing of wounds.

We are indebted to the members of the surgical staff of the hospital for permission to publish the cases.

Table showing Details of Cases.

	Sex and age.	Nature of operation.	Anæsthetic.		Pulse before operation.	After-effects for first two days.				Remarks.
			Nature.	Duration.		Pulse.		Vomiting.	Pain.	
						Average	Maximum.			
1	F., 20	Acute salpingitis; exploratory laparotomy.	N_2O + O (E 10 min.).	45 min.	120	105	112	None.	Slight pelvic pain.	During examination of appendix through mid-line incision abdominal muscles became rigid, and open ether was given for 10 minutes. Otherwise complete relaxation with N_2O + O.
2	F., 80	Gall-stones and carcinoma; cholecystectomy.	N_2O + O.	45 ,,	88	99	108	,,	None.	Patient did not know any cutting operation had been done.
3	F., 86	Acute suppurative cholecystitis; cholecystostomy.	C E N_2O + O.	38 ,,	92	82	92	,,	,,	C E induction and during division of abdominal wall. No abdominal sensations at all after operation.
4	M., 22	Duodenal ulcer (second part); exploration and posterior gastro-jejunostomy.	N_2O + O.	1 hr. 2 min.	60	71	80	,,	,,	Patient very anæmic. No abdominal sensations after.
5	M., 25	Acute peritonitis (lymph); exploration of whole peritoneal cavity, mobilisation of duodenum, dissection of biliary tract, &c.	N_2O + O.	1 hr. 10 min.	104	81	116	,,	,,	Pain absolutely relieved. No abdominal sensations after.
6	M., 77	Carcinoma of colon, acute obstruction (four days); exploratory laparotomy; colostomy; two incisions.	N_2O + O.	1 hr. 15 min.	88	102	116	,,	Slight pain next day.	Extensive gangrene of colon, vomiting on third day, collapse and death on fourth day (general peritonitis). Very collapsed before operation. Afterwards general condition good, except for first hour after operation, until third day.
7	M., 39	Pancreatic cyst; exploration; drainage.	N_2O + O.	33 min.	104	100	104	,,	None.	General condition bad before; afterwards absolute relief of symptoms. No abdominal sensations.
8	F., 16	General purulent peritonitis (five days); drainage.	N_2O + O.	12 ,,	160	140	160	,,	,,	Before operation, extreme collapse, patient cold, thought to be moribund. Afterwards, pain absolutely relieved, no distension, no abdominal sensations. Death from septicæmia on eighth day.
9	M., 38	Duodenal ulcer; posterior gastro-jejunostomy.	N_2O + O (E during induction).	1 hour.	72	77	96	Three times two hours after.	,,	No abdominal sensations, except feeling of numbness next day.
10	F.	Malignant endocarditis; popliteal aneurysm; ligature of femoral artery.	N_2O + O.	—	—	—	—	None.	,,	General condition very bad before operation — no post-operative symptoms at all.
11	F., 35	Appendicitis and pyosalpynx; appendix and tube removed; Trendelenburg position.	N_2O + O.	55 min.	90	88	104	Slight retching three times.	,,	Retched slightly three times during first 24 hours; otherwise no discomfort at all.
12	F., 60	Carcinoma of sigmoid; intestinal obstruction; manual exploration and colostomy.	N_2O + O.	50 ,,	—	—	—	None.	,,	Had been sick for several days after other operations, and was much gratified at absence of vomiting and pain on this occasion.

LITERARY INTELLIGENCE.—Amongst the new works announced by Messrs. J. and A. Churchill are the following:—"Industrial Organic Analysis: for the Use of Technical and Analytical Chemists and Students," by Mr. Paul S. Arup, with a Foreword by Dr. J. C. Irvine, Professor of Chemistry at the University of St. Andrews; "Quantitative Analysis in Practice: an Introductory Course designed for Colleges and Universities," by Mr. John Waddell, Assistant Professor of Chemistry, School of Mining (Queen's University), Kingston, Canada; "Bloxam's Chemistry, Inorganic and Organic," tenth edition, revised by Mr. A. G. Bloxam and Dr. S. Judd Lewis; "Practical Chemistry: Qualitative Exercises and Analytical Tables for Students," by the late J. Campbell Brown, Professor of Chemistry, University of Liverpool, sixth edition, revised by Dr. G. D. Bengough, lecturer on metallurgy, University of Liverpool; and "Dental Anatomy, Human and Comparative," by Mr. C. S. Tomes, seventh edition, revised by Dr. Marett Tims and Mr. A. Hopewell-Smith.—Messrs. Constable will publish almost immediately the "Life and Letters of Alexander Agassiz," edited by his son.

-sure and speed of the current, and involve a corresponding distribution of the blood in the skin, superficial and remote parts, and in the arterial vessels.

LIBRARY TABLE.

Zones of the Spirit: a Book of Thoughts. BY AUGUST STRINDBERG. London: George Allen and Co., Limited. 1913. Pp. 286. Price 5*s.* net.—August Strindberg, who died in May, 1912, was a man who passed through the fire of religious doubts and seeking in a manner comparable to St. Augustine. The book now before us was written at the age of 60, and in it Strindberg put down his thoughts upon an infinite variety of subjects. Much of the work has the obscurity of Blake, but as a record of the intellectual striving for the light it is of great interest. After many wanderings he came to the same conclusion as did St. Augustine, who said: "Thou hast made us for Thyself, and our heart is restless until it rest in Thee"; and the final sentence of Strindberg's book is, "Seek truth, for it is to be found, but only in one place, with Him who Himself is the Way, the Truth, and the Life."

The Distinction Between Mind and Its Objects. Being the Adamson Lecture for 1913. By BERNARD BOSANQUET, M.A., D.C.L., LL.D., F.B.A. Manchester: University Press 1913. Pp. 73. Price, paper, 1*s.* net; cloth, 1*s.* 6*d.* net.—This lecture is really a critique of the "New Realism" that we owe to the Manchester school of philosophy—"the novelty is this: that the realism in question, though it gives much less to Mind than Idealism, gives much more to Reality than Materialism." Popular materialism believes in an external material world and that "such characters as shape and motion are self-existent properties of things, while colour and sound for instance are effects produced in our minds through our sense-organs." Hence it tends to place all the things we care about most—voices, music, light, taste—on a "lower level of truth and reality than things like atoms and gravitation." The idealist points out that "as objects of mind, space, and motion, and so forth, are just on the same level with sound and colour," and hence "all objects of mind become either bits of mind or products of mind." According to the New Realism, "acts, and acts only, belong to mind [illegible] all objects, including contents, are external." Colour, for instance, is an "aspect of physical reality and is there in space, over against our mind." Justice, however, is hardly done to æstheticism; "a thing may be charming quite as really and truly as it is red, but its charm according to this realism must be a mind-dependent attribute (for to be charmed is a mental act), while its redness is physical and mind-independent." Dr. Bosanquet criticises the New Realism by saying that "all [illegible] involving pleasure and pain are mind-dependent [illegible] ysical realism can [illegible] he most [illegible] charac- [illegible] in the [illegible] ythetic [illegible] ical essay.

[illegible] hilosophy of th [illegible] ALD [illegible] rofessor of P [illegible] an [illegible] a [illegible] m: [illegible] 19 [illegible] —

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Cancer: the Problem of its Genesis and Treatment. By F. W. Forbes-Ross, M.D. Edin., F.R.C.S. Eng., D.P.H., late Civil Surgeon, His Majesty's Guards' Hospital. London: Methuen and Co., Limited. 1912. Pp. 261. Price 5s. net.—The essential point in the author's theory of the cause of cancer is that it is due to a deficiency of potassium salts in the body, and it naturally follows that the treatment which he advises and employs for the cure of the disease is the administration of potassium salts. He gives many arguments in favour of his theory, and he supplies details of some cases which have been under his treatment in which the administration of salts of potassium has been followed by more or less complete recovery. The administration of the potassium salts is combined with the local application of radium. The cases are too recent and too few in number to enable any definite opinion to be formed as to the value of the treatment, but we believe the author to be thoroughly convinced of the truth of his theory.

The Causes of Deafness. Four lectures delivered under the auspices of the National Bureau for Promoting the General Welfare of the Deaf. By J. Kerr Love, M.D. Glasg., Aural Surgeon, Glasgow Royal Infirmary, &c. Copies to be obtained at 104, High Holborn, W.C. Price 1s.—Dr. Kerr Love has given in the form of four lectures a most interesting study of the causes of deafness. Especially interesting are the histories of the deaf-mute families and the means to be taken for the prevention of acquired deafness. These lectures are of interest alike to the lay and to the medical public, and one cannot help but think that the study of them will be of very great value; especially will they be of service to all those who have to deal from an official point of view with the general health of children. They should be read by all Poor-law officials, and also by all those who have control of the large schools for the poorer classes, for it is only by a proper comprehension of the factors causative of disease that disease can be diminished.

Memoirs of the Department of Agriculture in India: Successful Treatment of Surra in the Camel. By A. S. Leese, M.R.C.V.S., Agricultural Research Institute, Posa. Calcutta: Thacker, Spink, and Co.—Surra is a very prevalent and fatal disease of the camel, and the losses to the Imperial Government have caused them to detail Mr. Leese, M.R.C.V.S, an officer in the Civil Veterinary Department, for special duty in investigating this and other diseases of the camel. Surra is due to the presence of the Trypanosoma Evansi and affects horses, mules, and camels with equal severity, whilst cattle and carnivora are not exempt. Certain species of fly are, as is often the case in these diseases, the intermediary hosts, and the ravages of the disease cause great losses, while animals which have once been infected may carry the parasites in their blood for years. All who have to do with the camel require patience, and continuously and successfully to study this animal in disease is a genuine exploit. Mr. Leese deserves all the encouragement which the Government of India can give him. His book deals with a number of experiments which he has carried out with different combinations of atoxyl, tartar emetic, and sodium arsenate, and apparently where the animals were able to stand treatment there was an encouraging proportion of cures, but where the pathological state was highly developed all treatment, in some cases at all events, appeared to shorten the end. At present, apparently, there is no specific, and much more experimental work must be done on surra before a satisfactory result can be claimed.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE SECTIONS.

Section III.—GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY.

Friday, August 8th.

President, Professor S. G. Shattock (London).

Discussion on Fatty Bodies and Lipoids.

Professor Ivar Bang (Lund) summed up the present state of knowledge on the lipoid bodies. He remarked that these labile bodies have seldom been isolated, but they play an important part in the structure and function of cells. They are extremely active and combine with albuminous bodies very readily. He discussed the connexion between the osmotic property of the lipoid cell membrane and the production of narcosis, the effects of the excitation of lipoids instead of their suppression, and finally the relation of lipoids to toxæmias, immunity, &c. There can be no doubt, he said, that these bodies play an important, though as yet little understood, part in the body economy.

Dr. S. Fränkel (Vienna) had investigated the lipoid content in cases of pregnancy, and his tables demonstrated an increase of fats and lipoids in such cases, and also a rapid increase in the early days of lactation.

The Chemistry of the Lipoids was dealt with by Dr. W. Cramer (Edinburgh). He criticised the various methods of identifying the fatty bodies, and concluded that the Marchi method was specific only for unsaturated glycerides. He demonstrated on the screen the distribution of fat in histological specimens of different organs, and pointed out that this method ought never to replace the determination by chemical analysis. His methods included the solvent action of acetone and alcohol, the use of osmic acid and Marchi's method, and the use of the polariscope, and he tabulated the varying behaviour of cholesterin, olein, oleic acid, lecithin, cholesterin palmitate, and cholesterin oleate, and then summarised his findings with normal and degenerated nerve tissues. He had demonstrated fat in the convoluted tubules of a cat's kidney, and also in the suprarenal body.

Professor W. G. MacCallum (Columbia University, U.S.A.) read a paper by the late Dr. Angus Stewart on the Relation of the Lipoids to the Function of the Adrenals, in which it appeared that there exists excess of cholesterin esters in the blood in pregnancy. Pregnant animals survived extirpation of the adrenals longer than normal animals, and this, perhaps, was associated with the excess of lipoids in their blood.

Professor J. G. Adami (Montreal), Professor G. Rosenfeld (Breslau), Professor L. Aschoff (Freiburg), and others then took up the discussion, which resolved itself into the question as to the nature of fatty disease.

Professor Rosenfeld considered that there was a real increase of fat in the organs, but Professor Aschoff said that this was not so, as although there was undoubted transportation there was a corresponding removal of allied bodies from the cell. Dr. Leathes had shown, in cases of diphtheria at least, that there was no actual increase of fat in the viscera which showed fatty degeneration.

Professor Adami urged the distinction between fatty infiltration and fatty degeneration, and recognised a histological difference between the globules of fat occurring in the cells under these conditions, though, of course, the latter was often accompanied by the former. He pointed out that there was now general acceptance of the work of Aschoff and himself in 1906, in which they showed that the doubly refractive bodies of the adrenal cortex and elsewhere were of the nature of cholesterin esters.

In the afternoon Dr. G. Roussy (Paris) read a paper on

Cytological Reactions resulting in Tissues around Deposits of Cholesterin.

His slides showed active cell increase in these regions with the formation of giant cells. He then gave an account of some granular bodies found around a cerebral cyst which contained two types of fat substances as revealed by the different affinities for fat stains.

Dr. Roussy's paper met with support from Dr. M. J. STEWART (Leeds), who described similar findings in the case of dermoids and sarcoceles.

The PRESIDENT brought forward a new fatty tumour removed from the elbow of a patient, in which the cells showed a central nucleus and closely aggregated small globules of fat. This he called lipoma glandulare. He compared this with the hibernating glands of the hedgehog, and what he considered to be the analogue of these in man—namely, fatty masses in the neck of the human embryo—and with these he discussed the masses of glandular fat occurring in cretins at the root of the neck.

Professor G. S. WARTHIN (Ann Arbor, U.S.A.) had met similar tumours in animals. He also read a paper on

The Reaction of the Hæmolymph Nodes to Chronic Protozoal Infections.

Working on Texas steers suffering from Texas fever, he had noted an extraordinary hyperplasia of the hæmolymph nodes. These sometimes reached the size of a small orange, and histological examination revealed great lymphoid activity and the production of lymphocytes. This condition was common to protozoal infections. The glands in chronic malaria resembled those in Banti's disease, and in syphilis also he had found similar glandular changes.

Professor PIETRO GIUZZETTI (Parma) gave a demonstration of microscopical specimens and lantern slides on the development of strands of pavement epithelium in the anterior lobe of the pituitary body in an infant a fortnight old. These findings appeared to have some bearing on the formation of malignant growths.

SATURDAY, AUGUST 9TH.

The Grafting of Normal Tissues as Dependent on Zoological or Individual Affinity—Autoplastic, Isoplastic, Heteroplastic.

A discussion on this subject was opened by Professor Dr. MAX BORST (Munich), with a *résumé* of the work done and a summary of his own extensive work in this direction. His beautiful lantern slides included the grafting of butterflies one to the other, earthworms whose heads had been interchanged, tadpoles variously malformed and augmented by additions of grafts from other tadpoles, and the formation of new joints in man. He discussed the conditions determining the success of such procedures. The more highly developed the animals the less are the chances of success. The results differ according to the origin of the grafts—i.e., whether they come from the same animal (autoplastic), similar animals (isoplastic), or quite different animals (heteroplastic). With heteroplastic grafts, on the whole, the results have been failures. Isoplastic grafting, though more favourable, does not appear to be enduring, for black negro skin transplanted on to white skin gradually changes to white skin and corneal grafts become transparent, so that it points to a process of substitution by the host's tissues of the grafted tissue. Autoplastic grafting has met with great success, and the tissues are preserved for a long time. He mentioned Carrel's successful experiments in suturing blood-vessels, with maintenance of the circulation, and the transplantation of entire organs. He discussed also the "explantation of tissues," or the attempts at preserving and cultivating them *in vitro* in suitable media. To account for the failure of isoplastic and heteroplastic grafting he propounded the theory of "biochemic difference," which recognises an extreme specialisation of the cells of higher animals with the production of a specifically reacting system. He concluded that there could be no hope of an enduring result in the case of isoplastic or of heteroplastic grafting, though the grafts may serve as foci or

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The PRESIDENT produced specimens from the Hunterian Museum which had been prepared by Hunter, who had carried out numerous experiments on these lines. In the specimen of the cock's comb with a human tooth graft there was evidence that the tooth had continued to live. He agreed that heteroplastic grafting was unsatisfactory, and the graft did not live as long as the host. He had attempted to graft fœtal bones from rabbits beneath the skin of the doe; the bones persisted but took no part in the life of the animal. The question of heteroplastic grafting was intimately associated with the question of species, and he considered that if such grafting could be permanently successful it would break down the barriers between different species. As it was, the failure explained the sterility which existed between different species of animals. He accentuated the importance of recognising a definite coördination of growth or an interdependence between the tissues of an animal.

Dr. J. B. MURPHY (New York) detailed experiments of grafting rat tumours into chick embryos with the production of growing masses for a time.

Dr. E. F. BASHFORD (London) dwelt on the results of immense numbers of tumour transplantations carried out in his laboratories and the difficulties of successfully producing such growths, the idiosyncrasies of such tumours, and the fact that normal mice were unaffected thereby, together with the observation that tumours could not be transplanted to other mice. He expressed the view that there was no prospect as yet of being able to replace diseased organs, such as kidney, with healthy ones.

Dr. LAMBERT (New York) had experimented with tissues which he had kept in plasma mixed with Ringer's fluid for as long as 35 days, obtaining definite evidence of proliferation.

MONDAY, AUGUST 11TH.

The Pathology of Shock.

This discussion was opened by Professor YANDELL HENDERSON (New Haven, U.S.A.), who pointed out that shock in the broad sense in which the term is often used is not a single, clear-cut disorder, but a group of conditions of superficially similar appearance. The term is also applied to various modes of sudden death. The older surgeons regarded concussion and shock as the same thing, and imagined that as a result of local concussion, vibrations were transmitted throughout the body, and led to a depression of vital functions. Crile has taught that the first avenue of shock is *viâ* the nervous system. Professor Henderson went on to enumerate the various types of shock, such as electrical shock, sometimes fatal; anaphylactic shock; emotional shock following grief or fright; and a condition of death under chloroform, even in the early stages seen both in man and in experimental animals. In recent years, he said, shock has been regarded as a state of depression, but different workers must necessarily view it in a different light. For example, the gynæcologist sees it as a result of hæmorrhage, the general surgeon sees it following severe injuries and simulating hæmorrhagic shock, whilst the more specialised surgeon sees it as a post-operative depression of vitality. To these must be added spinal shock which follows section of the spinal cord in animals, and a state of shock which follows toxæmic states. Goetz's frog-tapping experiments, by which syncope resulted, originated the earliest views of shock, but shock was not syncope. Professor Henderson differed from the view that had always been held that vasomotor failure was invariably present, that many other functions were equally depressed—e.g., respiration, the tonus and peristalsis of the intestines, &c. He next elaborated his view that syncope is essentially like spinal shock, and surgical shock is essentially like hæmorrhagic shock, but that the type of circulatory failure differs in the two groups. He produced experimental and clinical evidence in support of his acapnia theory of the fatal apnœa that may result from pain or other excitement. By this he held that carbon-dioxide is a most important stimulant for the respiratory function, and loss or diminution of CO_2, such as can occur as a result of the hyperpnœa and consequent excessive ventilation of the lungs which accompanies severe pain, leads to apnœa, and death may result from lack of oxygen. He pointed out also that CO_2 has a specified stimulant influence on peristalsis, and so might be given in tympanitis, &c. In his attempts to produce traumatic shock by exposure and irritation of the abdominal viscera the dogs used usually died from failure of respiration long before there was any marked fall in arterial pressure, and, indeed, Crile's published statistics agreed with this view. Thus, when shock follows intense physical suffering not complicated by hæmorrhage there are two principal stages. At first the excessive breathing diminishes the CO_2 content of the blood. If during this period of acapnia the pain is diminished the respiratory centre may lapse into a fatal standstill. If, however, the pain continues and so keeps the respiratory centre excited, then the condition of acapnia becomes more and more acute until the circulation fails. He next discussed the failure of the circulation in shock, and distinguished between experimental shock accompanied by destruction or paralysis of the vasomotor centre and clinical shock. He pointed out that whereas arterial pressure alone had been considered by most workers, a most important but little understood factor was the veno-pressor mechanism, and he summarised this by saying that it is the vasomotor centre which fails in spinal shock, but the veno-pressor mechanism in most, if not all, of the clinical forms of shock. He had experimented to determine the factors which normally control venous pressure and supply of blood to the right heart, and concluded that there is no effective nervous control of the systemic veins, but that the venous-pressor mechanism consists in the amount of blood in the body and the conditions controlling the volume, so that an animal dying of true circulatory shock is like one that has been exsanguinated. He concluded by urging workers to cease debating the sterile question as to the state of the vasomotor centre and to devote investigations to the observing of the factors controlling the blood volume under normal and abnormal conditions. Shock, he said, is not vasomotor failure; its fundamental conditions are not nervous, but chemical.

Mr. J. D. MALCOLM (London) agreed in great part with what had just been said. In abdominal operations he had seen many cases of shock, but he had never seen the congestion of the splanchnic area such as his early teaching led him to expect. On the contrary, the peritoneum became pale and anæmic. Hence he very early concluded that the vessels become more and more contracted as shock develops, and opposed the theory of vasomotor paralysis. The fact that blood pressure falls considerably in shock did not indicate a relaxation of vessels, and he held the chief cause of this to be a diminution of the whole amount of fluid in the vascular system. He accepted the teaching of Henderson as offering an explanation of many clinical facts, especially the condition indistinguishable from shock sometimes caused in the early stages of anæsthesia. He suggested that the sustained high blood pressure which has been described might be due to an interference with the normal distribution of fluids rather than to a contraction of the arteries.

Professor T. G. BRODIE (Toronto) agreed that the vessels are not dilated, and also pointed out that experimental shock was not the same as surgical shock.

Professor MORTON, from the clinical aspect, pointed out that failure of circulation does actually occur.

Dr. IVY MCKENZIE (Glasgow) emphasised the teaching that careful observation of respiration gives the clue to the first signs of shock for the anæsthetist.

Professor HENDERSON, in reply, regarded it as folly to treat shock by venesection. He held that chemical differences in the blood gases influence the blood volume. He hoped that with increased knowledge of colloids and changes in the body we shall be able to solve the problem. Meanwhile therapeutics must deal with maintaining the supply of water to the body.

In the afternoon Dr. ERWIN SMITH (America) contributed a paper on

Cancer in Plants,

illustrated by specimens showing the ravages caused by a tumour on peach and test plants. These tumours occur on any part of the plant and reproduce the structures of that part—e.g., root, stem, or leaf, and consist of vessels, fibres, and parenchymatous cells in varying amount. There is thus no actual overgrowth of any one type of cell, but rather a reproduction of the entire tissue affected. Metastases occur, but these can always be traced to have spread by direct extension from the primary growth. Dr. Smith has isolated from the growths an intracellular bacterium, B. tumefaciens, which inhabits the soil and is very resistant. This has been cultivated as a polymorphic organism, and an injection into the plant is followed by the characteristic tumour growth which resembles the tissue of the inoculated part. Complete excision of the tumour was followed by recovery, but if any portion was left behind recurrence resulted. Such are the facts of a very important contribution to the problem of tumc [illegible] which they aroused it was [illegible] ways similar to cancer formations, the analogy is not quite complete.

Professor WARTHIN contributed a paper on

The Primary Tissue Lesions in the Heart produced by Spirochæta Pallida.

The condition of syphilitic disease of the heart is, he said, little recognised by most text-books, and is regarded as of rare occurrence. He, however, held that, though coarse and usually described syphilitic lesions, e.g., gumma, are rare, other lesions are common. The lesions which he described are patches of pale œdematous material which he found in many syphilitics and even [illegible] young adults. His lantern slides [illegible] great numbers amongst the œdematous tissue of these parts. He concluded that the spirochæta pallida is readily and frequently found in the heart, and that it can lead to parenchymatous lesions, and aneurysm be followed by dilatation.

This important subject was commented on by the PRESIDENT, who said that many years ago, before spirochæta pallida was thought of, he had drawn attention to the œdematous lesions in syphilis.

Dr. J. SHENNAN (Edinburgh) then gave a paper on

The Etiology of Dissecting Aneurysm,

and illustrated it with lantern slides. In some there existed atheromatous patches in the intima, and these rupturing, allowed blood to escape into the vessel walls; in others there occurred no atheroma in the part concerned, but pathological changes in the media. He threw some light on the question of rupture of the blood back again into the lumen. He held also that miliary aneurysms of the brain are but dissecting aneurysms, a point which met with the approval of the President, who noted the absence of naked-eye changes in the cerebral vessels.

A paper by Dr. A. H. MACCORDICK (Toronto), read by Professor ADAMI, brought forward a new factor concerning

The Rigidity of Calcified Arteries.

It has long been a matter for wonder that "pipe-stem" arteries do not rupture after handling or that ante-mortem coagula do not form on the calcareous plaques which are found to project into the lumen of vessels at necropsies. Dr. MacCordick holds the view that the intra-vitam state of these calcifications does not correspond to the post-mortem state, but that they exist in a form comparable to liquid mortar, and the hardening is a post-mortem phenomenon. He had made observations on limbs immediately after amputation and on bodies examined within one hour of death. Also he had experimented with mixtures of mortar, calcium oxide, and calcium phosphate in different acid and alkali media and with CO_2, for he pointed out that the tissue and fluids are alkaline, but become acid after death, and CO_2 accumulates in the arteries after death. The ulcers found post mortem are the result of contraction of the arteries around these hardening deposits.

TUESDAY, AUGUST 12TH.

The Effect of Radio-active Substances and Radiations upon Normal and Pathological Tissues.

This discussion was opened by Dr. W. S. LAZARUS-BARLOW (London), who, after summarising the work already done, detailed his own observations (including those of his co-workers in his laboratories) into the effects of varying doses of radium on tissues, and on his findings of radio-active substances in cancerous tissues. He pointed out that the outstanding fact resulting from work in the past is that injurious effects may follow great exposure to the various rays that have been used, and instanced Hertwig's observations on the effect of radium upon ova of frogs. It has been shown that the rays exert profound action on chemical combinations—e.g., H_2O and NH_3—can be broken up into their constituents, or these can be synthesised. Also leucocytes, red corpuscles, opsonin, complement, enzymes, &c., are all changed in the direction of degradation. The ferments in the gastric juice, the saliva, and pancreatic juice are all destroyed, but tyrinase, oxidase, and rennin do not appear to be affected. In all these the X rays are the most powerful. In his laboratories they had experimented [illegible] much smaller doses than previous workers, and [illegible] that if such are insufficient to destroy the cells these may take on modification of functions. He had found as a result of his analysis that radium exists in most tissues in minute amounts varying from 0·000000001 mgm. $(\times 10^{-9})$ up to 0 000001 $(\times 10^{-6})$, but this is much increased in cancerous tissues and cancerous metastases, so that they had determined as much as 51 times this amount. At the same time, in the tissues of cancer subjects there is a marke[illegible] times). These had all been estimated by t[illegible] electroscope, which he described in detail. [illegible] inoculated radium silicate into the axilla o[illegible] [illegible] rse of a [illegible] from [illegible] always [illegible] investi[illegible] content of gall-stones from non-cancerous and from cancerous cases, and he found that whilst a mere trace occurred in non-cancerous cases, in cancer of the gall-bladder there was 85 times as much, and even when the cancer was elsewhere than in the gall-bladder there existed an increase of radium in the gall-stones. A further point was that radium could be removed out of solution in the presence of staphylococcus pyogenes aureus and it became localised in the bodies of the bacteria. Now, since bacteria form the common foci of gall-stones, he suggested the possibility of [illegible] around themselves and so lc[illegible] bladder. By his experiments on the living nerve muscle preparation and by testing its irritability he concluded that the action of radium in certain amounts was stimulative or beneficial. An ingenious apparatus allowed them to test the action of varying amounts of rays on Oscar's ova, stimulation of which was shown by rapid division. By so doing they determined the existence of an optimum dos[illegible] stimulated division of ova. Without venturing to [illegible] until further evidence had been obtained, he suggested that there was accumulating a certain amount of experimental and clinical evidence which tended to show that in certain doses radium had a stimulating action, the fact of its injurious action in larger doses having been known for a long time.

Professor O. HERTWIG (Grünwald) was unfortunately unable to take part in the discussion, but his paper on

The Effects of Radio-active Substances and Radiations upon Normal and Pathological Conditions

was before the meeting, and we append an abstract thereof. Radium and mesothorium rays, he argued, call forth in the [illegible] r of vegetable and [illegible] nd sperm cells, in [illegible] rotoplasms under equally intensive rays, change to an almost equal degree. A proof hereof is the hindrance to development of the impregnated ovum consequently on the application of the rays to one of the two germ cells before impregnation. By intensive radiation of the sperm cells the parthogenetical development of the ova impregnated through them can be produced. The hypothesis previously adopted that the lecithir[illegible] is therefore no longer to be [illegible] and undifferentiated cells in a condition of proliferation are, since in them the nuclei substance is in excessive proportion to the plasm products, more strongly affected by radio-active rays than fully formed tissues.

Professor WARTHIN added some clinico-pathological observations which he had made on a number of cases of [illegible] which had been treated with [illegible] save one which developed a [illegible] of destruction of the lymph nodes, so that the abnormal cells disappeared and even the [illegible] the bone marrow an aleukæmic [illegible] was no liberation of cells. He [illegible] reatment, though not curative, offered a prolongation of life for one or two years, but all the cases died suddenly at about this period.

Dr. MOTTRAM (London) had exposed growing roots and ascaris ova to the β and γ rays, and found a most marked action when exposed during the period of active growth. The plant cells divided much more vigorously if exposed during the night; and with ascaris ova the effect was eight times more powerful when exposed during the stage of active mitoses than when at rest. He also noted a change in the process of karyokinesis after exposure, so that there occurred fragmentation of the chromatin. He concluded that the β and γ rays lead to a disturbance of normal growth of both vegetable and animal cells, but that satisfactory treatment may be expected from rays if the tumour be rapidly growing and exhibiting an excess of dividing [illegible] r of [illegible] o an [illegible] the [illegible] carried further his re[illegible] and noted these were [illegible] d Dr. HELEN CHAMBERS (London) offered a combined research on

The Susceptibility of Tumours to Rays.

Small pieces of tumour (mouse cancer, rat sarcoma) were exposed to radiation for varying periods and then inoculated into animals and the growth noted. It was found that with a certain amount of irradiation the tumour was destroyed so that no growth ensued, but with lesser exposure a tumour of slower growth than the parent tumour resulted. This characteristic of slow growth was retained in successive [illegible] subculture—a fact which confirmed some [illegible] the French school.

Dr. LAZARUS-BARLOW, in his reply, put forth the view that radium treatment is a "possible" treatment, but we must direct our attention to finding the strength that will kill cancer cells and stimulate the connective tissue cells. The clinician must ever bear in mind that in killing one disease he must not produce another. He further offered these experiments as a justification of his earlier work which [illegible] d, in fact, to take the [illegible]

SECTION XI.—NEUROPATHOLOGY.

WEDNESDAY, AUGUST 6TH.

President, Sir DAVID FERRIER (London)

The proceedings of this section opened in the afternoon with the presidential address

The PRESIDENT began by making sympathetic reference to the famous names in English neurology of Dr. Hughlings Jackson and Sir William Broadbent, who had been prominent when last the International Congress met in London 32 years ago. He also greatly regretted the inability of Sir William Gowers to be present owing to the state of his [illegible] ndon the representatives of the [illegible] nt contrasted the neurology of [illegible] He referred to the phenomenal progress that had been made during the intervening years. In 1881 the doctrine of cerebral localisation was still being discussed, and with some acerbity; now its principles were universally accepted. Allusion was made to the remarkable advances in our knowledge of the structure of the cerebral cortex, the basal ganglia, infective and toxi-infective conditions of the central nervous system, and so on. It was pointed out that while a great part of this advance was the outcome of the application of experimental methods, clinical [illegible] had taught us just as much, if not indeed more, [illegible] to those brilliant clinicians [illegible] whose labours neurology had so notably profited.

Dr. S. AUERBACH and Dr. E. GROSSMANN (Frankfort) contributed a paper on

The Operative Treatment of Epilepsy,

in which it was stated that by simple decompression, more particularly in young subjects, they had obtained good results in idiopathic epilepsy, as well as in Jacksonian epilepsy. They considered that operative interference was justified when the patient was steadily deteriorating, physically and mentally, in consequence of the long continuance of his disease. They referred to various cases where an interval of as long as six years, without attack, had followed on operation.

The paper was discussed by Dr. G. ANTON (Halle), Dr. L. POUSSEPP (St. Petersburg), Dr. M. BIRO (Warsaw), Dr. PETREN (Upsala), and Dr. M. ROTHMANN (Berlin).

Dr. C. L. DANA (New York) read a paper on Little's Disease, with choreic and athetoid movements, where

The proceedings of the section terminated with a vote of thanks to the governors of St. Thomas's Hospital. Sir Malcolm Morris also expressed cordial thanks to those who had done the work of the section, Dr. MacLeod, Dr. J. H. Sequira, Dr. H. Leslie Roberts, and Dr. A. M. H. Gray. Dr. Cranston Low had been prevented by illness from being present. Many subjects had been discussed at the meetings, but of all these the question of venereal disease and its extermination was the most important. In future years he thought it would be remembered that this Congress had been the means of bringing this subject to the notice of the Governments of the world.

SECTION XVI.—OTOLOGY.

WEDNESDAY, AUGUST 6TH.

President, Mr. Arthur Cheatle (London).

The President, in a brief address, welcomed the visitors and contrasted the position of otology of to-day with that when the Congress last met in London, and touched upon the important work and progress that had been made during the intervening period.

Professor M. J. Mouret (Montpellier) read a paper on the Surgical Anatomy of the Mastoid Region. The paper dealt with the topographical division of the external (operative) surface and the relations of these divisions to the deeper parts—the antrum, the mastoid cells, the facial nerve, the lateral sinus, the semicircular canals, and the cranial cavity. The paper was profusely illustrated.

Professor P. Jacques (Nancy) read a paper on the Pharyngeal Drainage of an Otogenous Abscess.—This was discussed by Professor Moure (Bordeaux).

Professor Holger Mygind (Copenhagen) read a paper entitled "Secondary Suture after Simple Resection of the Mastoid Process." He described in detail the process he adopted, the object of which was to shorten the time required in the healing process of cases of simple resection of the mastoid for acute osteitis. The average duration of the cases not complicated with cerebral abscess, sinus thrombosis, or meningitis, treated in the Ear and Throat Department of the Copenhagen Commune Hospital being 74 days when the after treatment was by the filling up of the osseous cavity with granulations, whilst the corresponding figures for cases of secondary suture which healed, practically speaking, *per primam* was only 20 days.

The proceedings for the day concluded with a paper by Dr. Louis Bar (Nice) on Osteomyelitis Rocher.

THURSDAY, AUGUST 7TH.

A discussion on the

Pathology of Acquired Deaf-Mutism

was opened by Professor Alfred Denker (Halle), who gave a lantern demonstration of his pathological findings in the internal ear of persons so affected, and by Professor Mygind, who contributed a compendium of reports, published in the literature, of the examination of petrous bones of deaf-mutes with acquired deafness. The conclusion he had arrived at was that the pathology of deaf-mutism acquired after birth was really the pathology of infantile labyrinthitis which had come to its final stage and caused lasting deafness.

The paper was discussed by Dr. Castex (Paris) and Professor Uchermann (Norway). The latter suggested that the pathology was not "really" but "chiefly" the pathology of labyrinthitis.

Professor Gustav Brühl (Berlin) demonstrated photographs and microscopical specimens of the pathology of the internal ear in deaf-mutism.

Professor Werner Kümmel (Heidelburg), Professor Gustav Alexander (Vienna), Dr. J. S. Fraser (Edinburgh), Dr. W. Jobson Horne (London), and Dr. Spira (Krakau) also took part in the discussion, and the openers replied.

The proceedings concluded with a paper by Professor Kümmel on Subjective Noises in the Ear. He said the patient must be convinced that the subjective noises were a normal phenomenon, and that they might be observed by everyone capable of sufficient self-observation. Deafness, quite naturally, made this observation much more intense and obtrusive.

Afternoon Session.

Professor Gherardo Ferreri (Rome) read a paper on the Surgical Treatment of Chronic Suppuration of the Ear.

The President said he formerly practised the removal of the ossicles in chronic suppuration. He now regarded that procedure as a waste of time, although in some cases the ossicles might be left with safety at the time of doing the mastoid operation.

Dr. E. B. Dench (New York) was opposed to ossiculectomy. In a very small percentage of cases did he find the hearing impaired after the radical mastoid operation.

Dr. Mygind thought that surgeons were too optimistic, at the same time they must be optimistic as regards the hearing after the radical mastoid operation.

The discussion was continued by Dr. Jansen (Berlin), Mr. C. E. West (London), Professor G. Alexander (Vienna), Mr. G. J. Jenkins (London), and Professor H. Neumann (Vienna), and Professor Ferreri replied.

Professor E. V. Segura (Buenos Aires) read a paper on Some Points in the Évitement of the Petro-mastoid.

A joint paper by Dr. J. Gordon Wilson (Chicago) and Dr. F. H. Pike (New York) was read by the former. The paper was entitled "The Mechanism of Labyrinthine Nystagmus and its Modification by Lesions in the Cerebellum and Cerebrum, an Experimental Investigation."

The proceedings concluded with a paper by Dr. Robert Bárány (Vienna) descriptive of his experiences of the symptoms-complex of the ear which he had described.

FRIDAY, AUGUST 8TH.

The morning session was occupied with a discussion, conjointly with Section XV., on Salvarsan in the Ear, Nose, and Throat Disease, and the report will be found under Section XV. in our issue of August 23rd (p. 564).

Afternoon Session.

When the proceedings of the Section of Otology were resumed in the afternoon the session was occupied with the subject of Otosclerosis. The first paper was by Professor Gustav Bruhl (Berlin), who illustrated it with lantern demonstrations of preparations showing the pathology of otosclerosis.

Papers and demonstrations on the same subject were contributed by Dr. Albert A. Gray (Glasgow), Dr. Neumann, Mr. G. J. Jenkins (London), and Dr. J. Molinié (Marseilles).

SATURDAY, AUGUST 9TH.

The morning session was opened with a discussion on Non-suppurative Disease of the Labyrinth, the reporters being Professor Alexander and Professor von Eicken (Giessen). Professor Alexander gave a demonstration of micro- and macroscopic preparations. Dr. Nager (Zürich) gave a demonstration of histological specimens of influenzal labyrinthitis. Dr. Dench read a paper based upon two cases of sudden ablation of the labyrinthine function to the caloric test with operative findings.

The section did not sit during the afternoon.

MONDAY, AUGUST 11TH.

In the morning the section held a joint discussion with that of Rhinology and Laryngology. The subject for discussion was

The Special Treatment of the Throat, Nose, and Ear during the Active Stages of Certain Infectious Fevers,

namely, scarlet fever, measles, German measles, mumps, influenza, typhoid fever, whooping-cough, small-pox, chicken-pox, erysipelas, anterior poliomyelitis, and cerebro-spinal meningitis (diphtheria excluded). The subject was introduced by Dr. E. W. Goodall (London) and Dr. Victor Delsaux (Brussels).

Dr. Goodall considered the subject under four heads—namely: (1) a description of the morbid conditions of the fauces, nose, and ear in the diseases mentioned; (2) the results, temporary and permanent, local and general, of these morbid conditions; (3) the class and proportion of cases in which these conditions occur; and (4) the treatment which was discussed under two headings: (*a*) local, such as local applications and removal of adenoids, and (*b*) general, by serums and vaccines. Local applications Dr. Goodall had found efficacious in the majority of cases, as shown by the following figures. Of 303 cases of scarlet fever which were discharged directly from the Eastern Hospital during the period Jan. 1st, 1912, to the middle of February, 1913, in only one was otorrhœa still present; of 421 cases of measles, in 8 there was persistent otorrhœa, and in 2 of these certainly the otitis was of long standing; of 90 cases of whooping-cough, in only 1 was there otorrhœa when the patient left the hospital. Again, during the 10 years 1900 to 1909 there were 153,607 cases of scarlet fever treated in [illegible] In 20,349 [illegible] but only in [illegible] ease of the temporal bone (0·6 per cent.); that is to say, only 4·5 per cent. of the otitis cases resulted during the time they were detained in hospital in the spread of inflammation beyond the middle ear. He added that the practice in most of the fever hospitals was to keep the aural cases under treatment till the discharge had ceased, but if this event had not happened before the end of 12 weeks then the patient was allowed to leave the hospital. Of course, in such cases advice was given to the patient or to the friends to apply for further treatment to a medical man or hospital. Within recent years, Dr. Goodall went on to say, it had been advocated in certain quarters that if an otorrhœa persisted for more than six weeks the antrum and, if necessary, the mastoid cells should be opened up, or even the complete operation performed, even if [illegible] structures were involved. [illegible] that such a proceeding was [illegible] chronic cases, and that a prolonged course of treatment on the lines already indicated should be carried out before resort was had to operation, and he believed that in this opinion he was supported by all his colleagues in the Asylums Board's service.

A large number of the members of the conjoint section discussed the subject and concerned themselves for the most part with the question whether a mastoid operation should be performed at an earlier date and more frequently in cases of acute otitis media associated with scarlet fever. It was generally remarked that the history of a large number of [illegible] ears which had [illegible] the ear, nose, [illegible] the general ho[illegible] or of some infectious fever earlier in life. There was not evidence to show whether these cases had been under treatment in the fever hospitals, nor was there any evidence forthcoming even if they had been treated in those hospitals of the condition of the ears when they left. The general opinion of those who took part in the discussion seemed to be that operative treatment on the mastoid would have been the means of preventing the chronicity of many cases.

Dr. GOODALL, in replying to the question of early operation in cases of otitis media resulting from scarlet fever, said that formerly he did operate early but often found nothing in the antrum, and had therefore not felt justified in continuing that line of treatment. He had given exact statistical information of the results of the treatment that he had adopted, but the otologists had not responded by giving the same in support of their contention that scarlet [illegible] through the operation not being [illegible] motion was put from the chair [illegible]

It is the opinion of the members of the Section of Otology, [illegible]

[illegible] proceedings in the afternoon, [illegible] ens and models of various pa[illegible] ich had been on view in the [illegible] the exhibitors.

TUESDAY, AUGUST 12TH.

Professor CLARENCE JOHN BLAKE (Harvard University) and Professor GIUSEPPE GRADENIGO (Turin) contributed papers to a discussion upon

Climatic and Occupational Influences in Diseases of the Ear.

In the unavoidable absence of Professor Blake his report was read by Dr. REIK (Boston).

The influence of normal climatic changes acting directly upon the ear were slight, in the opinion of Professor Blake, and was principally exerted through the medium of such associated organs as the nose and nasopharynx or in participation with changes in a systemic condition. The influence of the artificial climatic conditions of trades and occupations was much more pronounced and operated through the same media. Much was being done to abolish prejudicial conditions by the welfare work of the various trades which [illegible] value with the increase in [illegible] tance; but there was one [illegible] ne of mechanical industry [illegible] all, especially affecting the [illegible] secondarily the organ of [illegible] almost the last to receive [illegible] duced by unnecessary noise [illegible] tion to the exposure to th[illegible] moisture and often laden [illegible] ty of diffusion, with [illegible] nd-transmitting appa- [illegible] to the sensory manifestations of intra-aural circulatory changes in mountain climbers and aviators. In conclusion, Professor Blake pleaded, as a part of preventive medicine, for the furtherance of such welfare work as shall decrease the unnecessary noises of traffic and of manufactures.

[illegible] examination.

Dr. JOBSON HORNE discussed the penalties to hearing occasioned by the application of modern science to modern life. He referred to the telephone, aviation, and modern street traffic. The injurious effects in all three were due to suddenness of unexpected noises, and in aviation the sudden climatic changes in making rapid ascents. The dizziness experienced by aviators he attributed to the vibration. [illegible]

[illegible] papers, which inclu[illegible] upon two cases of [illegible] had been cured [illegible] lumbar punctures. [illegible] combat the comp[illegible] meningitis, and he was supported by those who took part in the discussion.

SECTION XIX.—FORENSIC MEDICINE.

MONDAY, AUGUST 11TH.

President, Professor HARVEY LITTLEJOHN (Edinburgh).

Alcohol and Degeneracy.

A discussion on this subject was opened by Dr. BENNO LAQUER ([illegible] country, [illegible] combatin[illegible] further, t[illegible] subject. [illegible] and disti[illegible] which took place in the tissues, more particularly as they affected hereditary processes. He remarked upon the connecting links with eugenics as expressed in the views of Forel, Francis Galton, and Karl Pearson. He referred to the work of Lundborg, the Swedish neurologist, who had traced the alcoholic origin of the degeneracy of a rural [illegible] the controversy [illegible] arl Pearson. In [illegible] laxis of chronic [illegible] in every country [illegible] which [illegible] n that when a man addicted to alcohol, which tendency had [illegible] in more than one generation, was married to a [illegible] y in the offspring was marked, [illegible] woman the degeneracy was less marked. In the case of originally robust parents who subsequently became alcoholic, the degeneracy in their later children was progressive.

Dr. C. W. SALEEBY (London) drew attention to the work of Professor Stockard, of New York, who had proved the occurrence of alcoholic degeneracy by long and carefully

Fraudulent Maternity Certificates.

The case brought by the Crown against a medical man and two nurses for having conspired to furnish false information in relation to the maternity bonus claims has been occupying the criminal court in Melbourne for some days. The case for the Crown disclosed that the medical man attended cases of midwifery at a private hospital managed by the women, and the fees were divided on a commission basis. Claims for the bonus were made on births, and it was alleged that some of these were fictitious. For the defence the medical man said that he had no intention of defrauding the Revenue, but being tired he one day signed a number of forms in blank, leaving them to be filled by one of the other defendants. The jury returned a verdict of "Guilty" against the two women, who were sentenced to 12 months' hard labour and a fine of £100. The medical man was acquitted.

Melbourne Hospital.

The new buildings at the Melbourne Hospital have been declared open by Mrs. J. Grice, wife of the president of the hospital committee. They comprise the first portion of the new hospital and include two ward blocks, nurses' and administration quarters. The ward blocks are six storeys high. The new buildings will be ready for occupation by patients in a few days.

Federal Committee of the British Medical Association.

The Federal committee held its third session in Sydney early in July, when representatives of all the States and New Zealand were present. The New Zealand branch wrote regretting it could not see its way at present to federate with the Australian branches. The representation of Australian branches upon the central council of the British Medical Association was allowed to stand over for discussion, and the committee resolved that each State branch be asked to endeavour to induce the State Government to confer with it before introducing any legislation affecting the medical profession. The same request was actually made to the Honourable S. Cook, the Federal Prime Minister, by a deputation of the Federal committee as to Federal legislation, and it was favourably received. Each branch was asked to appoint a committee to study the English National Insurance Act and see what modifications were required for Australia.

July 30th.

Obituary.

WALTER WHITEHEAD, F.R.C.S. EDIN., F.R.S. EDIN.,

CONSULTING SURGEON TO THE MANCHESTER ROYAL INFIRMARY.

BY the death of Mr. Walter Whitehead, which took place at Colwyn Bay on August 19th, Manchester has lost one who was for many years its most widely known surgeon. He had been in failing health for several years, and indeed had retired from all active association with the medical profession ever since 1904.

Born at Haslam Hey, Bury, in 1840, Walter Whitehead was descended from common stock with Robert Whitehead, the inventor of the Whitehead torpedo, and Kay, the inventor of the flying shuttle, was also in his pedigree; but his father, John Whitehead, was in the bleaching business, the family connexion here being some 200 years old. After leaving school he was engaged for some time in his father's business, but finding that bleaching was uncongenial he borrowed money to pay his lecture fees and entered the Chatham Street School of Medicine in Manchester. He has recorded himself that the loan and the intention to become a medical man were in the first instance unknown to his father. While a student he was apprenticed to two medical practitioners at Bury, and subsequently acted as locum tenent for the resident staff at the Manchester Royal Infirmary. He therefore learned his profession in an unusually thorough way, becoming acquainted with the routine of private practice and institutional practice alike. In 1864 he became a Licentiate of the Society of Apothecaries of London and of the Faculty of Physicians and Surgeons of Glasgow, and immediately commenced general practice at Mansfield Woodhouse, Nottinghamshire, where he remained for three years. Young as he was—for he was only 24 when he went to Mansfield Woodhouse—he showed his zealous and scientific temperament by organising a local hospital, his Manchester experience having shown him that the general practice and the hospital resources ought to run together.

In 1866 he became a Fellow of the Royal College of Surgeons, Edinburgh, and a year later moved to Manchester, feeling that he required a larger scope for his energies and undoubted ability. He commenced in general practice, but was quite soon appointed surgeon to St. Mary's Hospital for Women and Children, Manchester. In this post he did a great deal of work among the sick poor, and made himself an authority on the subject of infant mortality, giving evidence before a Committee of the House of Commons on the subject. In 1873, being by this time a marked man both for his practical work and his early writings, he was appointed assistant surgeon to the Manchester Royal Infirmary, an appointment all the more gratifying to him that his residential position there had only been as a locum tenent. Six years later he was appointed honorary surgeon, so that he obtained enormous opportunities as an operating surgeon while still a young man. He was on the active staff of the infirmary until 1900, and most of his well-known work is connected with this institution. He retired and became honorary consulting surgeon at the age of 60. During this period he held other staff appointments in Manchester, although he resigned his surgeoncy to St. Mary's Hospital for Women and Children. He was surgeon to the Manchester and Salford Lock and Skin Hospital, and it was on his initiative that the two classes of cases were separated and the Manchester and Salford Hospital for Diseases of the Skin founded, to which institution he became consulting surgeon. He was honorary surgeon to the Christie Cancer Pavilion, and some of his lingual surgery was done in connexion with this institution; and in 1885, when he was elected president of the Manchester Medical Society, he called attention to the rapid development of cancer, especially among women, in terms which aroused a good deal of attention and showed him to be one of the early clinicians to recognise the increasing mortality due to malignant disease.

In 1894 he was appointed professor of clinical surgery in Owens College, Manchester (Victoria University), Professor Tom Jones being at the same time appointed professor of systematic surgery. Whitehead certainly had the chair for which his talents and experience seemed exactly to fit him, but he made no great mark as a teacher. The professorial appointment came a little too late for him, for whereas in the "eighties" he may be said to have been in the van of scientific surgery, by the time he was 53 some of the inventive keenness that marked his earlier work had passed off. His great clinical ability commanded the respect of his pupils during his six years' tenure of the chair, but he was quite devoid of, if not actually opposed to, the academic spirit. An enumeration of his written contributions to surgical science proves at once his power of original thought and the enormous amount of clinical work that he compressed into the active period of his career. A paper on mucous colitis disease, which he read at a meeting of the British Medical Association at Newcastle as early as 1870, showed him at first as a clinical physician. The paper was founded on the notes of a number of cases of what was at that date a little-known condition, and recommended the administration of potassium bromide over a period of many months, a practical piece of advice for which due reasons were advanced. All his later papers were, however, surgical in character. He was the inventor of several operations, with two of which his name is associated regularly—viz., his methods for the removal of hæmorrhoids and for excision of the tongue. A third operation, a modified procedure for performing tracheotomy, has also brought his name into surgical literature. These various operations have been described by himself in the *British Medical Journal* and in our columns. At the International Medical Congress held in London in 1881 he read a paper on the excision of the tongue before the Surgical Section, which was published in THE LANCET.[1] He described his technique, and was able to quote notes of no less than 28 cases personally operated upon by himself. Ten years later he read a paper on the same subject before the Medical Society of London, which will be found in our columns.[2] Here 139 cases of excision of the tongue were described, an experience that few if any operating surgeons could have equalled. His operation for the excision of piles was first described in the *British Medical Journal*, and at the meeting of the British Medical Association in Brighton in 1887 a further paper was read on the subject, in which 300 consecutive successful cases were recorded. His description of a modified tracheotomy will be found in THE LANCET of 1887. He collaborated with Mr. Bilton Pollard on the article on the surgical treatment of tumours and other obscure conditions of the bladder, which appeared in Treves's System of Operative Surgery, and was himself responsible for the articles on the affections of the mouth and the surgery of the thyroid glands in the same compilation.

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[1] THE LANCET, Oct. 22nd, 1881, p. 698.

[2] May 9th, 1891, p. 1032.

Whitehead was certainly a bold, ingenious, and inventive surgeon, and the admirable results of operations designed by himself, and often performed in unconventional manner, well deserved to bring him the popularity that they did. Patients came to him from considerable distances to be operated on, and his records of successes showed how well justified was the faith both of the public and of his colleagues in his skill and experience.

In 1902 he published an *edition de luxe* of a work on Lymphangiectasis, and in the same year he was elected President of the British Medical Association. The success of the meeting at Manchester that year was largely attributable to his efforts and social spirit. In commemoration of the occasion he published a limited private edition of Professor William Stirling's beautiful book "Some Apostles of Physiology." The dedication which precedes this handsome and well-illustrated volume may well serve as an epitome of Whitehead's fame among his colleagues. It runs as follows:—

To
WALTER WHITEHEAD
President
of
The British Medical Association
1902.
Consulting Surgeon to the R. I. Manchester,
Late Professor of Clinical Surgery
in the Victoria University.
Whose love of Art and whose Liberality
made it possible to issue this Volume in a
manner worthy of the event it
is designed to celebrate.

In private life Whitehead was a genial host who enjoyed to see those around him happy, while he had a passion for yachting. After his retirement from practice and during his long final illness he lived at Colwyn Bay, and devoted himself as far as he was able to landscape gardening. He was twice married, and leaves one daughter.

The remains were cremated on August 23rd in the presence of a large gathering of friends, colleagues, and representatives of various institutions and public bodies.

JOHN PATTERSON, M.D. ABERD., L.R.C.S. EDIN.

one of the most sought after by a very numerous international *clientèle*, who had a never-diminishing confidence in his ripe judgment, professional skill, and complete integrity of character. He received his medical training in Edinburgh, and in 1855 became a Licentiate of the Royal College of Surgeons of Edinburgh. In the same year he graduated as an M.B. in the University of Aberdeen, proceeding to the M.D. degree five years later. His career as a student was a successful one, and he obtained several first-class certificates and medals for distinction in different professional examinations.

He early showed an adventurous spirit, for soon after his graduation he engaged as medical officer to an expedition proceeding to the Arctic regions for a variety of scientific investigations, and in the course of his voyage he had many interesting and frequently thrilling experiences. A few years after his Arctic voyage the British Government appointed him as medical officer for the service of the transport administration of Egypt. In this important office he remained ten years, during which time he rendered valuable services to the country. Thus, during the great cholera epidemics that ravaged the population of Cairo and its neighbourhood for many months at a time, he was able to keep the way to India open. This was of inestimable value to the trade and shipping of Great Britain. In recognition of his valuable services during that period the British Government conferred upon him the title of Caimacam of Egypt. He was often called Dr. Patterson Bey, denoting a man of high public distinction, and Queen Victoria gave him a signed permit to accept and wear the insignia of his order. The population of Cairo presented him on his retirement from that city with a gold watch and chain. From Egypt Dr. Patterson went to Constantinople and was appointed head surgeon to the British Seamen's Hospital. In this capacity he served with great distinction for 33 years. In 1880 and 1887 he acted as the British delegate to the Ottoman Health Council. Fifteen years ago he retired on pension, but kept up his connexion with the British Seamen's Hospital as a consulting physician.

Dr. David Sandler writes: "No man more noble and worthy than Dr. Patterson ever lived on the banks of the Bosphorus. He was every inch a gentleman, of a most loving disposition and character. He was kindly, considerate, sympathetic in the highest degree. It was this quality that made him beloved by all his many patients, and honoured and esteemed by those who came into contact with him. He was a man of strong opinions, but those who disagreed with him respected his open and unaffected honesty. All were attached to him. To the end of his days he was active. Although nearly 80 he still delighted in a long walk on foot, and to climb up a steep hill was to him quite an easy matter. His unabated care for his patients was touching. To the poorer classes he was a real friend and a most sagacious physician, and to the last he visited them in the remotest corners of the city. I will conclude by quoting the words spoken to me by Mrs. Patterson, his excellent life-companion: 'I am sorry for those he leaves behind, not for him. He died as he wished, in full harness and in full possession of his clear senses.'"

WILLIAM GAYTON, M.D. BRUX., M.R.C.P. EDIN., M.R.C.S. ENG., F.R.S.E., J.P.,

MEMBER OF THE HONOURABLE SOCIETY OF GRAY'S INN.

Dr. William Gayton, who died from angina pectoris on August 7th at the age of 74, led a very full professional life and discharged many public and private duties with exemplary zeal and tact. After studying at the London Hospital he qualified M.R.C.S. Eng. and L.S.A. in 1860, and for some time he was in general practice in the East end of London.

Dr. Gayton had the distinction of being the first medical superintendent under the Metropolitan Asylums Board. He was appointed 44 years ago to the Eastern Small-pox Hospital, Homerton, and during his 13 years of office there he was also in charge of the Small-pox Camp, Darenth, and the hospital ship *Atlas*, off Greenwich. From the Eastern Hospital he went to the North-Western Fever Hospital, Hampstead, where he remained until his retirement at the age of 65. Dr. Gayton was the author of "Notes on Small-pox and its Treatment," "Value of Vaccination as Shown by an Analysis of 10,403 Cases of Small-pox," the article on Small-pox in "Quain's Dictionary of Medicine," "Evidence before Hospitals Commission, 1882," and "Evidence before Vaccination Commission, 1889." He was also the inventor and patentee of a safety fever carriage. For about 12 years he was a justice of the peace for Hampstead (County of London), and he served upon the Pentonville Prison Committee and Lunacy Commission. Dr. Gayton was a keen Freemason. He was a past master of the Sincerity and Loyalty Lodges of Freemasons, a founder and past master of the London Hospital Lodge, and past grand registrar, Essex, of the Hope and Unity Chapter.

Dr. Gayton leaves a widow, four daughters, and one son, who is at present senior assistant medical officer at the Kensington Infirmary.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Bernhard Bardenheuer, who very recently resigned the position of senior surgeon to the Cologne municipal hospital. He was also professor of surgery to the Cologne Academy of Practical Medicine, of which he was one of the most active founders. As a surgeon he was of mortality in these towns, which had been 19·2, 18·7, and 20·7 per 1000 in the three preceding weeks, fell to 19·9 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these Irish towns averaged 17·4 per 1000; in the 96 large English towns the corresponding rate did not exceed 12·2, while in the 16 Scotch towns it was equal to 14·1 per 1000. The annual death-rate last week was equal to 19·8 in Dublin (against 12·4 in London and 19·1 in Glasgow), 20·7 in Belfast, 19·7 in Cork, 15·3 in Londonderry, 19·0 in Limerick, and 34·2 in Waterford, while in the remaining 21 smaller towns the mean death-rate did not exceed 18·1 per 1000.

The 458 deaths from all causes were 17 fewer than the number in the previous week, and included 111 which were referred to the principal epidemic diseases, against numbers rising from 27 to 111 in the six preceding weeks. Of these 111 deaths, 92 resulted from infantile diarrhœal diseases, 10 from measles, 6 from whooping-cough, 2 from enteric fever, and 1 from scarlet fever, but not one from diphtheria or from small-pox. The mean annual death-rate from these diseases last week was equal to 4·8 per 1000; in the 96 large English towns the corresponding rate was 3·2, while in the 16 Scotch towns it did not exceed 2·8 per 1000. The deaths of infants (under 2 years of age), which had steadily increased from 15 to 97 in the six preceding weeks, slightly fell to 92 last week; of this number 31 were recorded in Dublin, 30 in Belfast, 11 in Cork, and 3 in Limerick. The deaths referred to measles, which had been 7, 3, and 6 in the three preceding weeks, rose to 10 last week, and included 4 in Galway and 3 in Waterford. The fatal cases of whooping-cough, which had been 5, 4, and 2 in the three preceding weeks, rose to 6 last week, of which 3 occurred in Galway. The 2 fatal cases of enteric fever were recorded in Dublin and that of scarlet fever in Belfast.

The deaths referred to diseases of the respiratory system, which had been 51, 51, and 43 in the three preceding weeks, were 42 in the week under notice. Of the 458 deaths from all causes, 130, or 28 per cent., occurred in public institutions, and 11 resulted from different forms of violence. The causes of 15, or 3·3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment has been notified:—Fleet-Surgeon: J. Chambers to the *Suffolk*.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General T. M. Corker, honorary physician to His Majesty the King, has been placed under orders for transfer from the Sixth (Poona) Division of the Southern Army in India to the Ninth (Secunderabad) Division and appointed Deputy Director of Medical Services.

Lieutenant-Colonel D. Hunter, D.S.O., commanding the Royal Army Medical Corps Depôt and School of Instruction at Aldershot, has been placed under orders to embark for a tour of service in India, and on arrival will be appointed Assistant Director of Medical Services to the Allahabad and Fyzabad Brigades. Lieutenant-Colonel J. J. Gerrard, senior medical officer in the Sierra Leone Protectorate, has been selected for the increased rate of pay under Article 317 of the Royal Warrant for Pay and Promotion. Lieutenant-Colonel H. A. Bray, principal medical officer of the Egyptian Army, has arrived home on leave of absence. Lieutenant-Colonel O. L. Robinson, Deputy Assistant Director of Medical Services (Sanitary) to the Sixth (Poona) Division, has been transferred to the Home Establishment, and appointed Professor of Tropical Medicine at the Royal Army Medical College, Grosvenor-road, S.W., in succession to Major W. S. Harrison, whose tenure of the appointment has expired.

Major G. J. Houghton has arrived home on leave of absence from West Africa. Major N. J. C. Rutherford has been appointed to the Irish Command on the termination of leave of absence on medical certificate. Major R. G. Meredith has been placed under orders for a tour of service in Ceylon, embarking from Southampton Sept. 27th. Major J. Dorgan, specialist sanitary officer to the Cork District, has been placed under orders to proceed to South China for a tour of duty, embarking Sept. 27th. Major D. J. Collins has been appointed to hold charge of the Military Hospital at Kirkee Cantonment. Major C. C. Cumming has been selected for appointment as Clinical Pathologist to the Military Hospital at Malta. Major E. E. Powell, at present serving in the Aldershot Command, has been placed under orders for a tour of service with the Northern Army in India, embarking Oct. 22nd. Major A. E. Master, medical officer attached to the Royal Arsenal at Woolwich, has been appointed for duty at Windsor. Major H. S. Thurston has been appointed to the Irish Command for duty in the Dublin District. Major H. W. K. Read has been transferred from the Ninth (Secunderabad) Division to Burma for duty at the Military Hospital, Rangoon. Major A. D. Waring has taken over medical charge at Wool Camp on transfer from Hilsea. Major W. Tibbits has been appointed to the Northern Army in India for a tour of service, embarking Sept. 24th. Major G. B. Crisp has been placed under orders to embark for a tour of service in South China, embarking Sept. 27th. Major D. L. Harding has been appointed to hold medical charge at Finner Camp on transfer from the Military Hospital at Belfast. Major R. V. Cowey has been transferred from the Military Hospital at Bulford Camp, Salisbury Plain, to Tidworth. Major R. N. Hunt has arrived home on leave of absence from Cairo.

Captain E. L. Moss has been selected for appointment as Specialist in Midwifery and Diseases of Women and Children, and placed in charge of the Military Families General Hospital at Portsmouth. Captain G. H. Stack has been appointed to the Eastern Command on the termination of leave of absence home from West Africa. Captain P. J. Marett has embarked for a tour of service in Malta. Captain J. du P. Langrishe has been placed under orders to join the Irish Command on Oct. 16th, and on arrival will be appointed to the Cork District for duty. Approval has been granted by the Director-General Army Medical Service for an exchange between Captain W. F. H. Vaughan, stationed at the Military Hospital, Cork, and Lieutenant A. S. Heale, attached to the Military Hospital at Malta. Captain A. S. Cane has been selected for appointment as Specialist in Dermatology and Venereal Diseases to the Sixth (Poona) Division. Captain W. F. H. Vaughan has been placed under orders for a tour of service with the Northern Army in India, embarking Sept. 12th. The following officers at present serving in the Irish Command have been selected to attend the next courses of study for promotion to the rank of Major to be held at the Royal Army Medical College, Grosvenor-road, S.W.:—Captains: E. G. Anthonisz, A. W. Bevis, A. H. Bond, A. Dawson, G. De la Cour, W. Egan, F. Forrest, H. G. Gibson, V. C. Honeybourne, A. E. S. Irvine, A. H. Jacob, M. P. Leahy, A. S. Littlejohns, F. A. McCammon, E. M. O'Neill, G. H. Rees, P. S. Sampson, W. J. Weston, and A. S. Williams. Captain D. B. McGrigor has been *transferred* from the Military Hospital at Meerut Cantonment to Ranikhet. Captain A. E. G. Fraser has arrived home for duty from Cairo, tour expired. Captain J. A. Turnbull has been transferred from the Military Hospital at Oxford and placed in medical charge at Wedgnock Park Camp. Captain R. R. Lewis has left the Aldershot Command for a tour of duty in the Sierra Leone Protectorate. Captain R. H. Nolan has taken up duty at the Military Hospital, Glasgow, on transfer from Glencorse. Captain J. G. Bell has been appointed to hold Medical Charge at Altcar Camp. Captain J. B. Hanafin has been transferred from the Military Hospital at Nowshera Cantonment to Gharial, Muree Hills District. Captain C. M. Nichol has arrived home on leave of absence from the Military Hospital at Cairo. Captain G. W. G. Hughes has qualified as a Specialist in Ophthalmology at the recent promotion examination held at the Royal Army Medical College. Captain J. B. Meldon has taken up duty at the Military Hospital, Eastbourne, on transfer from Brighton.

Lieutenant O. W. J. Wynne has been placed under orders for a tour of service with the Northern Army in India, embarking Sept. 12th. Lieutenant C. C. Jones has been appointed to the London District for duty at the Queen

Alexandra Hospital, Grosvenor road, S W Lieutenant S H Smith has taken up duty in the Eastern Command Lieutenant J L Ritchie has been transferred from the Military Hospital at Lichfield to the Aldershot Command Lieutenant S J Barry has been appointed to the Royal Herbert Hospital at Woolwich on transfer from Guildford Lieutenant J Hare has taken up duty in the Belfast District on transfer from Londonderry Lieutenant H M Sealy has been appointed to the Irish Command, and on arrival will be posted to the Dublin District for duty Lieutenant T J Hallinan has been appointed to the Military Hospital at Calcutta on completion of a course of instruction in Military Sanitation at Lucknow Cantonment Lieutenant W A Frost has been transferred from the Military Hospital at Poona Cantonment to Kirkee Lieutenant S J Higgins has been appointed to hold medical charge at Scartngloraine Camp on transfer from the Military Hospital at Cork Lieutenant R Hemphill has been appointed to the Southern Command Lieutenant H C Todd has been appointed to the Southern Army in India for a tour of service embarking Sept 24th Lieutenant E C Beddows has been appointed to the Irish Command Lieutenant E C Lang has been appointed to hold medical charge at Maryborough Heath Camp on transfer from the Military Hospital at the Curragh An exchange of destinations in India and dates of sailing between Lieutenants H S Blackmore and H W L Allott has been approved, the former will embark on Dec 11th for Southern India and the latter for Northern India on Nov 21st Lieutenant S P Sykes has been transferred from the Military Hospital at Kingston on Thames to Woolwich Lieutenant R E Porter has taken over medical charge at Poeghane Camp on transfer from the Military Hospital at Waterford

OFFICERS TRAINING CORPS

Royal College of Surgeons in Ireland—Major Auckland Campbell Geddes ceases to serve with the contingent (dated August 4th 1913)

INDIAN MEDICAL SERVICE

Colonel A O Evans has been confirmed in the appointment of Inspector General of Civil Hospitals in Burma by the Government of India

Lieutenant-Colonel Bruce Seton Deputy Director General of the Indian Medical Service has been appointed Brevet Colonel The services of Lieutenant Colonel T E Dyson have been replaced temporarily at the disposal of His Excellency the Commander in Chief in India Lieutenant Colonel W R Edwards C M G, has been appointed to officiate as Inspector General of Civil Hospitals in Bengal Presidency during the absence on leave of Colonel G F A Harris Lieutenant-Colonel T W Stewart civil surgeon at Akyab, has been granted privilege leave for three months combined with furlough for one year and nine months

Major F V O Beit has been appointed Civil Surgeon at Meiktila in succession to Captain E B Munro Major L E Gilbert whose services have been replaced by the Government of Madras at the disposal of the Government of Burma has been appointed Civil Surgeon at Akyab in succession to Lieutenant Colonel T W Stewart Major W M Anderson has been selected for appointment as Residency Surgeon to the Gwalior State Major P K Clutale has been appointed to officiate as Civil Surgeon of the First Class during the absence on furlough of Major W H Kenrick

Captain D G Cooper has been appointed a Specialist in Electrical Science The services of Captain R A Lloyd have been placed at the disposal of the Central Provinces Administration for civil employment Captain G L Duncan has been appointed Specialist in the Prevention of Disease and placed in charge of the Bacteriological Research Laboratory at Brigade Headquarters Nasirabad The services of Captain J B Baket have been replaced at the disposal of H E the Commander in Chief in India Captain A C Munro has been appointed to hold substantive medical charge of the 128th Pioneers Captain J H Murray has been appointed to officiate as Senior Medical Officer at Port Blair during the absence on leave of Major J M Woolley Captain O I Marr has taken up duty at Lahore Cantonment as officiating Medical Storekeeper to Government during the absence on leave of Major A A Gibbs Captain H I Cook has been appointed Civil Surgeon at Wana

The King has approved of the admission of the under-mentioned gentlemen as Lieutenants on probation Sahib Singh Sokhey, Atul Krishna Sinha James Findlay, Allan Seddon Jyotish Chandra De William Collis Spackman, and Robert Morrison Easton

The King has approved of the confirmation of the commissions of the following Lieutenants on probation with effect from Jan 25th 1913 Richard Reginald Maitland Porter, Robert Sweet, Patrick Joseph Walsh and Archibald Campbell Macrae

COLONIAL MEDICAL SERVICES

West African Medical Staff—The death has occurred of Mr P F Foran Medical Officer, Southern Nigeria Dr W Morrison Medical Officer Northern Nigeria and Mr W Browne, Medical Officer Southern Nigeria have resigned Dr C T Costello retires on pension, and Dr M W Ruthven also retires The following gentlemen have been selected for appointment to the Staff Mr C J H Pearson and Dr B W F Wood Northern Nigeria, and Mr H North Southern Nigeria

Other Colonies and Protectorates—Mr A D Clanchy and Mr Leslie Webb have been selected for appointment as Medical Officers, Uganda Dr P F Nunan Dr J H Thomson, Dr G Dunderdale, and Dr J H H Pirie have been selected for appointment as Medical Officers East Africa Protectorate Dr J H C Greene has been selected for appointment as a Medical Officer, Federated Malay States

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

Lieutenant William Tyrrell is confirmed in his rank

TERRITORIAL FORCE

Royal Army Medical Corps

1st East Anglian Field Ambulance, Royal Army Medical Corps Charles Frederick Searle to be Lieutenant (dated August 13th, 1913)

2nd West Lancashire Field Ambulance, Royal Army Medical Corps John Francis Roberts to be Lieutenant (dated July 24th 1913)

Attached to Units other than Medical Units—Lieutenant Charles E M Jones to be Captain (dated July 1st 1913)

For attachment to Units other than Medical Units—Lieutenant Thomas H La N Hewitt to be Captain (dated June 18th 1913) Lieutenant Colonel Edward B Reckitt is retired and is granted permission to retain his rank and to wear the prescribed uniform (dated Sept 6th 1913)

Unattached List—Reginald William Fletcher to be Second Lieutenant (dated Sept 1st, 1913) Lieutenant-Colonel James E Shaw resigns his commission (dated Sept 6th 1913). Captain Arthur Tinley Sissons from the 3rd Northumbrian Field Ambulance Royal Army Medical Corps, to be Captain (dated Sept 6th 1913)

THE ROYAL NAVAL MEDICAL SCHOOL

In the account of the Naval Medical Service published in the Students Number of THE LANCET no special notice was given of the Royal Naval Medical School whose services are now of such value to naval medical officers This school was established at the Royal Naval College, Greenwich on the recommendation of the Durnford Committee it being considered desirable that the Naval Medical Service should through its school be in touch with the principal civil medical schools and institutions in London, should have opportunities of making use of the chemical laboratories at the College and should be in close proximity to the Dreadnought Seamen's Hospital and the London School of Tropical Medicine It is situated in the Queen Anne block of the College and was opened on May 1st, 1912 It consists of a lecture theatre laboratories research rooms, museums animal rooms and all the necessary rooms for the study and teaching of general and naval hygiene clinical patholog [illegible] conjunction [illegible] spital at Haslar [illegible] y as does the [illegible] n the Army There are three distinct courses laid down and each of these occurs twice a year The courses are (1) For acting surgeons of two months duration the remaining four months being spent at Haslar, (2) for surgeons prior to examination for promotion to staff surgeon of five

The Sampson Inner Tube Repair Kit.

This kit consists of a cutting and expanding tool and plugs designed to keep the edges of a puncture permanently together and closed. The plugs consist of two discs, one of which is placed inside the tube, the other outside. By turning the stem which connects the two portions of the plug these are clamped together, covering the edges of the whole with equal pressure. The wire stem is then snapped off level with the metal portion of the cap. When more than one puncture occurs in a day the stock of spare tubes is liable to run short. To affix an ordinary patch takes some time, and for such emergencies this device can be strongly recommended as a satisfactory means of rapidly repairing an inner tube. The plugs cost 6*d* each, and the kit complete, with cutting and expanding tool, costs 12*s*. 6*d*. It can be obtained of Messrs. Brown Brothers, Limited, of Great Eastern-street, London, E.C., who have lately issued their Motor and Tool Catalogue for 1913.

The 14-18 h.p. Adler Car.

This make of car is one well known in Germany, where large numbers of taxi's are turned out by this firm; and it has an equally good reputation on this side, where it is stocked by Messrs. Morgan and Co., 10, Old Bond-street, London, W., and 127, Long Acre, W.C. Recently I spent an afternoon in putting one of these cars through its paces. The road through London to Harrow and over the bad Harrow Hill, as well as up and down that unpleasant incline from Northwood to Rickmansworth, formed part of the route chosen. As a result I found the car satisfactory in every respect. The clutch is of the inverted cone type, engages very gently, and is easily operated. The gearbox provides four speeds forward and a reverse, and the final drive is by a cardan shaft through a hollow torque tube to the usual type of crown wheel back axle. The four-cylinder engine has a bore of 75 and a stroke of 120, and the ignition is by an Eisemann magneto with an automatic advance, so that the point at which the spark occurs suits itself both to high and low speeds. A welcome innovation in the Adler is the introduction of a foot control. The car appeared well suited to the needs of a medical man, and especially to an owner-driver who desires to keep his machine in running order himself.

Self-Starters.

Personally, I think that the actual time and exertion taken in starting a modern engine is so infinitesimal that the necessity for such a device as a self-starter is open to question; but, without doubt, it is convenient, especially in rainy weather. There are a good many on the market—some working by electricity, others by acetylene gas, and others by compressed air. Probably the latter form is the simplest, and a very good type is the Umotca compressed air engine starter which is sold by the Union Motor Car Company, of 19, Denbigh-street, London, S.W. It consists of a four-barrelled pump which can be driven off the clutch or cam shaft, and supplies air, at 200 lb. pressure, to an air reservoir. From this reservoir it can be taken when needed to each cylinder by means of a distributing valve, and thus the engine is started. In addition an arrangement is so made that the compressed air can also be used for inflating tyres. This appliance seems simple, works satisfactorily, and can, I think, be safely recommended to those who do not wish to have the trouble of pulling their starting-handle round. Whether this freedom from what is, after all, but very little exertion is worth the price charged, is, of course, a matter of opinion. Of the electric type of self-starter one of the most excellent is fitted to the Cadillac cars.

The Decarbonising of Engines.

However good the lubricating oil may be, there comes a time when carbonised oil is deposited in the cylinders, and this, after the engine has been running for a little while, may become incandescent, with the result that the mixture explodes before it is properly compressed, so that power is lost. If a good oil is used in moderation, and care is taken to run the engine with a sufficiency of air, this condition should not arise for a long time, but after prolonged running it will occur. The treatment formerly was to take off the cylinder covers and scrape and clean the pistons, rings, and covers, and the job usually took not far short of three or hour hours to perform. As an alternative to this various preparations were sold which were said to remove the deposit. As a rule these were not satisfactory, but, as previously mentioned in this column, a novel method has during the last two years come into vogue, which consists of burning, and thus removing the deposit by means of a small pilot jet fed with oxygen. This method has been introduced by the Internal Combustion Engine Company, Limited, of 3, London Wall Buildings, London, E.C. They have issued licences to a large number of garages to carry out their procedure, which is both speedy and efficient. It can be finished off under the hour.

Braking and Descending Hills.

It is by the careful descent of hills that the life of the tyres, and the engine as well, can be greatly prolonged, and I write now in reply to letters. It is generally accepted that the best procedure is to descend with the engine throttled and the clutch in, with the first or second speed. By this method the brakes are not used, but are ready in case of emergency, and the car is always completely under control. Of course, if the hill is very steep, the ignition can be cut off, and if an extra air valve is fitted to the inlet pipe even the little waste of petrol is obviated and, what is more, the engine is cooled. To drive down on the brakes merely means wear of brakes and tyres. The only point to remember is this, that it is not easy to change down gears when on the hill, and that it is better to stop at the top and slip in the first or second speed than to run the risk of damaging the gears by trying to do so on the hill.

The Use of Benzole.

As mentioned previously in these notes benzole can be used as a substitute for petrol. With the present price of petrol this substitute is becoming more and more popular, and provided that plenty of air is mixed with it, it is just as satisfactory as petrol, giving equal power and mileage. It does not cause sooting of the engine, so long as an extra air inlet is fitted to the intake pipe. It can be obtained at a good many garages and at most of the depôts of the South Metropolitan Gas Company, as well as the Gas Light and Coke Company. Occasionally in cold weather there may be a little difficulty in starting with benzole. Those who do not like cranking, as an exercise, can obviate this by dropping a little of an equal mixture of petrol and ether into the cylinders, when they will start with merely one turn.

A New Valve-grinding Preparation.

A good many valves are, in my opinion, ground when they do not require it; but after an engine has run some 3000 or 4000 miles it is usually as well to grind the exhaust valves, or at least to see if they are pitted and thus need treatment. Some form of emery is usually employed, and this has to be mixed with a little oil, and there is always the danger that it may work itself away and get where it is liable to do damage. To obviate this the Clover grinding compound has been introduced. It does not contain emery or grit, is of uniform consistency, and cannot do any harm.

Tyre Valve Plungers.

A very common cause of the deflation of a tyre is the bending of the valve plunger, and thus the pin may jam, and the mushroom end not make a perfect joint. It is, therefore, a good plan always to carry some spare plungers, and when a tyre goes flat to remember that it may be due to a leaky valve, and not to diagnose a puncture until having eliminated the first possible cause.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Welsh National Memorial.

A MORE or less complete record of the work already accomplished by the Welsh National Memorial Association is contained in the first report of the association. The objects of the association as stated by its founder, Mr. David Davies, M.P., are to "concentrate the patriotism of the Welsh people on the extermination of a disease which is preventable and curable, and by so doing to commemorate the life and work of King Edward VII." With this end in view an educational campaign was entered upon three years ago with vigour, and by means of a tuberculosis exhibition and by a scheme of lectures in all parts of the country an initial step was taken in impressing on the public generally the importance of the question Later the two existing sanatoriums, one situated in North Wales and the other in South Wales were taken over by the association, and further sanatoriums and hospital accommodation have been provided, so that there is now accommodation in such institutions for over 800 patients Included in the scheme is also a dispensary service The capital fund of the association amounts to £210,000 of which sum all but £22 000 have been actually paid over In addition, however, to the £6000, which is the income of this capital the association will receive from the Treasury under the National Insurance Act £28,000, from the county councils and county borough councils of Wales and Monmouthshire £22,000, and a further £3000 from the Government, a total of £59,000 The estimated expenditure of the association for the year is £81 000, which includes £37,000 for hospitals, £19 000 for institutes £18 000 for sanatoriums and £7000 for administrative expenses This excess of expenditure over assured income is causing some concern, for it is thought in some quarters that the deficit may have to be made up out of the local rates Although the medical officers of health of several county councils and county boroughs at the outset were reluctant to hand over to the association the carrying out of duties which they considered should be performed by themselves, only one county council—that for Pembrokeshire—has yet shown any desire to administer the sanatorium benefits of the National Insurance Act rather than hand over its obligations to the association Dr H Owen Williams, the county medical officer of health of Pembrokeshire, has given some very good reasons for keeping the administration within the county, and his proposals have received a good deal of support

Cardiff Garden City

Although the first sod was cut only in March last of the garden city at Rhubina, Whitchurch, near Cardiff a great deal of progress has been made in the enterprise The scheme is being carried out by the Cardiff Workers Co operative Garden Village Society, which proposes to develop a large estate on co partnership lines In the first instance 34 houses are to be erected, of which several are completed, but it is hoped that eventually there will be 300 houses on the estate which has an area of 30 acres The streets are being arranged and the houses planned so as to secure sunlight to the living rooms The roads are planted with trees and are bordered with grass strips Parts of the estate are being reserved for churches, schools, and other public buildings, and playing fields and bowling greens will be made

Cardiff Hospital

The recently issued annual report of the King Edward VII Hospital, Cardiff is a record of largely increased activity in connexion with an institution that was established in 1837 in which year 42 in patients were treated and about 1000 out patients at a cost of £760 In 1912 there were 2700 in patients nearly 20 000 out patients and the expenditure was over £18,000 The number of beds now available is 270, but 50 of these are not yet in use owing to the necessity for providing an increased annual income for their maintenance of about £3500 It is of interest to note that during the present year the sale of roses on Alexandra Day secured nearly £1000 for the hospital During 1912 there was established the Cardiff and District Hospital Society, which has for its object the encouragement of systematic contributions amongst all classes of working people of a penny each per week The regulations of the society provide for the erection and maintenance of convalescent homes to supplement the work of the hospital Another useful agency connected with the hospital is the Samaritan Fund, the object of which is to assist necessitous in patients who have recovered from an illness, but have not regained their strength, to go to work again Food and milk are supplied to some patients for a few weeks, and others are sent to convalescent homes

The Barnstaple Board of Guardians and the Ilfracombe District

At the last meeting of the Barnstaple board of guardians it was reported that there was still no applicant for the post of district medical officer for Ilfracombe After some discussion it was decided to place the whole matter before the Local Government Board and to ask their assistance and help As already stated in THE LANCET, if the Barnstaple guardians offered an adequate salary the appointment would soon be filled

The Dartmouth Town Council and the Local Government Board

The medical officer of health of Dartmouth recently reported upon the unsatisfactory housing conditions in certain parts of the town, and the Local Government Board sent a communication to the council in reference to the matter The works committee of the council were appointed to consider this letter, and, having done so, recommended that a reply be sent stating that the council did not agree with the medical officer of health as to the insanitary conditions of the houses, and consequently did not see any necessity for providing a scheme for the reconstruction of the houses referred to

Proposed Public Slaughter house for Exmouth

At the last meeting of the Exmouth district council it was decided to instruct the sanitary committee to report on the advisability of providing a public abattoir for Exmouth, and to submit plans and estimates for its erection It was stated, in opposition to progressive tactics, that at Newton Abbot a public slaughter house was built two years ago and is now used as a fire station, and at Ilfracombe the abattoir is a source of considerable expense to the ratepayers

Bridgwater (Somerset) Infirmary

It has been decided to enlarge the Bridgwater Infirmary as a memorial to the late King Edward VII, and also to commemorate the centenary of the institution The cost of the scheme will be about £5000

The Cornwall County Insurance Committee

The first meeting of the newly constituted Cornwall County Insurance Committee was recently held It was reported that during the last six months the Cornwall Insurance Committee had paid the medical men of the county the sum of £13 206, and the chemists had received £1750 It was stated that there are still from 8000 to 10,000 persons who have not yet elected their medical adviser The committee add that, as far as can be discovered, the medical practitioners are quite satisfied

Sept 9th

IRELAND.

(FROM OUR OWN CORRESPONDENTS)

Irish Medical Committee

THE first meeting of the Irish Medical Committee, appointed by the meeting of delegates held on July 17th as the representative committee of the profession, was held on August 27th in the Royal College of Surgeons Dr P J Macnamara of Kilmallock being in the chair The medical secretary Mr Maurice R J Hayes announced that 27 out of the 32 counties and all the boroughs had nominated their representatives, as had also many of the academic bodies Though the mode of election is different the new Committee differs little in *personnel* from the Conjoint Committee which it supersedes Dr Macnamara was elected chairman and honorary treasurer, Mr R J Johnstone, of Belfast, vice chairman, and Mr Hayes medical secretary A finance and executive committee was elected A resolution was passed condemning the post of "medical adviser" as contrary to professional ethics, and the various Irish medical corporations were requested not to appoint any persons holding such post to any office in their gift A resolution was also carried requesting consultants to make inquiries concerning any practitioners who might invite their assistance as to whether they had accepted any office contrary to the wishes of the profession

The Apothecaries' Hall Dublin and the Appointment of "Medical Adviser"

A curious position has arisen at the Apothecaries' Hall, Dublin, as a result of the disapproval of the profession of the post of "medical adviser' recently created by the Irish Insurance Commissioners A meeting of the medical profession of Dublin passed a resolution to the effect that no person holding such a post should be elected to represent any medical corporation on the General Medical Council The proprietors of the Hall a few days later re-elected as their representative on the General Medical Council a gentleman who is one of the "medical advisers" to the Insurance

Obituary.

ANDREW CLARK, D.Sc. Oxf. (Honoris Causâ), F.R.C.S. Eng.,

KNIGHT OF GRACE OF THE ORDER OF ST. JOHN OF JERUSALEM; COLONEL, A.M.S. (TERRITORIAL FORCE); HONORARY SURGEON TO H.M. THE KING; CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL.

It was with much regret that we announced last week the death of Mr. Andrew Clark, which occurred on August 29th at the age of 66. He was the son of Mr. Benjamin Clark, F.R.C.S., and was educated at a private school, receiving his medical education at University College and Middlesex Hospital medical schools. He became a Licentiate of the Society of Apothecaries in 1868, a Licentiate in Midwifery in 1870, a Member of the Royal College of Surgeons of England in 1869, and took the Fellowship of that College in 1873. He served the office of obstetric assistant at University College, and of house surgeon at the Middlesex Hospital, and later became surgical tutor and subsequently lecturer on surgery at the latter hospital. He was appointed assistant surgeon to the Middlesex Hospital in 1871, and full surgeon in 1895; unfortunately, owing to ill-health, he was obliged to retire from the acting staff, and was elected consulting surgeon in 1908. He was also surgeon to the St. Marylebone General Dispensary, and continued on the committee of that institution until the time of his death. He was for many years the London surgeon to the All Saints' Convalescent Home at Eastbourne, and was in addition consulting surgeon to St. Saviour's Hospital, Osnaburgh-street.

Andrew Clark took a most active part in the work of the British Medical Association, of which he was elected one of the Vice-Presidents. In recognition of the services he had rendered to the Association he was awarded its gold medal, and in connexion with the same body received the Doctorate of Science at Oxford. He was one of the senior officers in the A.M.S. (Territorial Force), in which he held the rank of colonel. He was Knight of Grace of the Order of St. John of Jerusalem and honorary surgeon to the King. Amongst his literary works he issued the Middlesex Hospital Surgical Reports in 1872-73-74, and published some "ambulance" lectures in 1888. He was editor of the fourth edition of "Fairlie Clarke's Manual of Surgery."

At the Middlesex Hospital his death will be greatly regretted. He was universally esteemed by all with whom he had come into contact during his long service at that institution. His kindly manner and the interest which he took in everything connected with the hospital will long be remembered. Especially will his loss be felt by the members of the Middlesex Hospital Club, of which he had been treasurer for 30 years, and for a long period had been secretary also. He was a most regular attendant at the annual dinner, and the reception which was always accorded to him demonstrated the warmth of the affection felt towards him.

Mr. Clark married the daughter of Mr. Joseph Hargreaves, of Liverpool, and her sympathetic personality has endeared her to the large medical circle with which Mr. Clark was so intimately associated. He leaves a son and five daughters. The funeral took place at Folkestone, and a memorial service was held in the chapel of Middlesex Hospital.

Deaths of Eminent Foreign Medical Men.—The deaths of the following eminent foreign medical men are announced:—Dr. Preiser, a well-known Hamburg surgeon whose specialty was orthopædics.—Dr. Borne, senator of the Doubs.—Dr. V. Fossel, extraordinary professor of the history of medicine in the University of Gratz.—Dr. E. von Balz, formerly professor of clinical medicine in Tokio University.

Correspondence.

"Audi alteram partem."

PELLAGRA AND DRUG INTOXICATION.

To the Editor of The Lancet.

Sir,—I have for some time past taken considerable interest in the question of pellagra in England, and I congratulate Dr. G. S. Blandy on his excellent contribution in last week's issue of The Lancet. The occurrence of this disease in England, where maize is not a staple article of diet, is a matter for much surprise and discussion. Tanzi states that in Italy only 4 per cent. of pellagrous cases are confined in asylums. Does it not seem somewhat extraordinary that most of the cases recorded in England have been inmates of these institutions? May I dare to suggest that some of the cases of suspected pellagra are an intoxication by, or idiosyncrasy for, certain sedative drugs which are in common use. My chief, Dr. F. R. P. Taylor, tells me that he has frequently met cases which were indistinguishable from those which have been described as pellagra, the potent element in these cases being sulphonal.

During my own somewhat limited experience of asylum work I have seen cases which under the influence of 20 to 40 grains of trional per diem, given at intervals, have shown that typical pellagrous rash on the backs of hands and on the wrists and face. In all cases this condition has been symmetrical and was on several occasions accompanied by diarrhœa, some emaciation, and in one case by anæsthesia of lower limbs. Exposure to the sun certainly did occur in some cases, but in no case has this condition arisen where the patient has been taking drugs other than trional or sulphonal. In one particular case, knowing that trional produced this condition each spring, we used bromides and chloral as necessary sedatives, with the happiest results. I should be extremely glad to learn the experience of other alienists as to the frequency of such cases in their asylums.

I am, Sir, yours faithfully,
W. Rees Thomas, M.D. Lond., M.R.C.P. Lond.,
Senior Assistant Medical Officer and Pathologist,
East Sussex Asylum, Hellingly.
Sept. 9th, 1913.

NATIONAL INSURANCE ACT CERTIFICATES.

To the Editor of The Lancet.

Sir,—The Insurance Commissioners have issued to the societies and the medical profession draft forms of certificates to be employed under the National Insurance Act. It is impossible to allow these forms to pass into common use without criticism and protest. In the first place, the insured public have a right to demand what the Commissioners mean by "specific disease." All members of the profession know what that term meant originally in correct scientific language; they know also that it has, for convenience and the preservation of secrecy, been for years used in out-patient nomenclature as a synonym for syphilis. In which sense do the Commissioners employ it? If they mean merely a "disease" (or the syndrome which medicine is forced in most cases to define as a disease) let them say so and leave the word "specific" out. Do they mean, as it is probable that they do mean, to accentuate the point that the unfortunate medical man is bound to take all risks in common law and certify to a defamation of character? For it is a defamation of character to say that any man or woman has a venereal disease and leave them to explain how they got it. Or do they use the word in a sense grotesquely pedantic for such a widespread document, and intend to include gonorrhœa, syphilis, acute rheumatism, diphtheria, and all the other diseases scheduled by Act of Parliament in the catalogue of the Royal College of Physicians. If the latter is the intention of the Commissioners the employment of the word can only be called unfortunate or the result of ignorance. If the word is deliberately employed to include venereal disease, it is a poor compliment to the insured population to give the phrase such a prominent place in the now copious literature of the National Insurance Act It may be feared that the explanation of this word from panel doctors, which must necessarily occur in the next few years, will engender a pleasant feeling among the insured classes [illegible] rage [illegible] the [illegible] the [illegible] hen it is known that it must be handed in to an official, or a number of officials will not be found in practice to protect medical men from action even if they are handed personally to the patient It will also become impossible in practice to hand any certificates to any third person, as the refusal in necessary cases to hand them over will in time be interpreted as a slander The inconvenience which will be caused to the insured public will be enormous, and if every opportunity will be afforded them of realising it the profession cannot be blamed Another new departure in principle is made in the form of the certificate The medical man has to certify that he has examined the patient that day, and a case which has recently occurred in the Brighton police court shows clearly that this point will be rigidly enforced The medical man may perfectly well know that a worker is incapable of work and that he never will be capable of work, but he must not issue a certificate unless he has seen the patient that day It may be impossible for the patient to visit the medical man, and in that case the man will have to whistle for his money because he cannot get a certificate, or the medical man out of the charity of his heart may have to make a perfectly unnecessary journey of possibly many miles to supply one

These two points are sufficient to condemn this form entirely, and unless they are withdrawn and some practical suggestions sought from men of experience really cognisant of the working of general practice nothing can be expected but friction and ill feeling

I am, Sir, yours faithfully,

A MAUDE,

Chairman, Kent Medical Committee

Westerham, Kent, Sept 6th, 1913

To the Editor of THE LANCET

SIR,—It appears to me that a great deal of unnecessary consideration has been given to the subject of medical certificates in connexion with the National Insurance Act Seeing that these are invariably asked for by, and given to, the patient him or herself, or his or her messenger or agent, and never to any other person, where does the difficulty with regard to medical ethics come in? What can it matter whether the phraseology of a certificate is in the first or the third person so long as it is given to the patient him or herself? The fact of his or her having handed over this certificate to a third person does not involve the original signator—i e, the medical attendant—in any responsibility, legal or ethical One of your correspondents, while writing upon this subject somewhat carpingly asks, ' How many certificates per member per week is a medical man expected to make out free of charge?" If he had read carefully Circular M B I, par 8, issued to medical men on the panel by the County Insurance Committees, there would have been no need for him to ask this question It reads as follows —

> 8 In accordance with the form of agreement signed by the doctor, he will furnish such certificates as are required to be furnished by the insured person in connexion with any claim for sickness or disable [illegible] ce of the rules of the Approved [illegible] it shall be clearly understood [illegible] the Committee do not of course [illegible] in connexion with claims made by an insured person to societies other than the Approved Society of which he is a member [illegible] other certificates will of [illegible] between the doctor and [illegible]

One initial certificate only, therefore, is required of the doctor for each patient sufficiently ill to claim benefit, and for those only The weekly, and in some instances fortnightly, signatures cannot properly be called "certificates" All other certificates and signatures are charged for

I am, Sir, yours faithfully,

W W HARDWICKE, M D St And,

Carlyle square, S W, Sept 5th, 1913

THE EFFECTS OF THE DUCTLESS GLANDS UPON DEVELOPMENT.

To the Editor of THE LANCET

SIR,—The above subject is attracting so much attention that I may perhaps be permitted to add a post-script to my paper in your last issue Since it was written I have examined the skeleton of the dwarf in the Museum of the Royal College of Surgeons of Edinburgh and through the kindness of the conservator have been able more closely to examine the base of the skull Before the removal of the skull cap the base, seen through a hole in the vertex, appeared to be normal But after the cranium had been sawn off and the sella turcica cleansed and measured, it was found that its capacity was quite 50 per cent more than that of the normal sella with which it was compared

On the other hand in a most pronounced case of ateleiosis which formed one of the exhibits at the recent international congress a beautifully clear radiogram (for which I am indebted to the X ray department at the Middlesex Hospital) showed a sella turcica of normal size, though it is true that the posterior clinoid processes were apparently thickened In this latter respect it resembles a case of ateleiosis (?) described in an interesting paper by Dr Jameson Evans,[1] in which a sella smaller than usual is apparently encroached upon by a projection of the posterior clinoid processes In both cases the prominence is within the limits of normal variation I am, Sir, yours faithfully,

Reading, Sept 7th 1913 HASTINGS GILFORD

THE TREATMENT OF PULMONARY TUBERCULOSIS

To the Editor of THE LANCET

SIR,—I noticed that the Tuberculin Dispensary League have recently stated that there are 220,000 tuberculous patients requiring treatment in England and Wales, from which they conclude that it is impossible to provide sanatorium accommodation for these people They also state that they could deal with and cure 70 per cent of these people at tuberculin dispensaries They perhaps hardly realise what a crushing condemnation of their methods is implied by these figures In England and Wales in 1906—I do not happen to have more recent figures beside me, but it is unlikely that the number of deaths has been increased much during recent years—a little less than 40 000 persons died from pulmonary tuberculosis This number represents a little over 18 per cent of the number which they suppose require treatment If their figures are correct it would appear that if these patients were left alone to be dealt with as they have been dealt with heretofore then about 82 per cent would survive, and the Tuberculin Dispensary League would be only destroying 12 patients out of every 100, a number which might be largely increased supposing tuberculin be administered carelessly

There is one other point which I should like to emphasise before closing the important point to be decided at present is not whether a patient has been infected with tuberculosis, but whether the tuberculosis is causing him to be ill Finally, it may be better in some cases to not treat cases rather than use a remedy which has such a capacity for evil

I am, Sir, yours faithfully,

Ayrshire Sanatorium Sept 6th 1913 EDWARD E PRIEST

ENTRIES IN THE MEDICAL DIRECTORY.

To the Editor of THE LANCET

SIR,—May I draw the attention of your readers to the present circular which the editors of the Medical Directory are sending out It appears that in order to cut down the size of the volume they are restricting the amount of space allotted to each name the result being that some "appointments held" or "scientific papers written" are withheld I believe this was first done in the 1912 issue but I for my part certainly overlooked it, and I have no doubt many other of my professional brethren did also I find that any man who can put his name at the head of a few lines of print in one or other of the medical journals is allowed eight entries on that head, but that he may only put in three entries of past appointments held. Now, Sir, if I am wanting a doctor in the country to whom I may send a patient I do not look to see what a particular man may have persuaded an easy-going editor to publish, but what his record in his younger days has been, how many and what kind of appointments he has held and still holds—that gives one a far better idea of the experience of a given man than the titles of his papers. We all know how easy it is to write original papers culled from other men's books or brains, and just what value to attach to them; but if a man has done work in his younger days at certain special departments of medicine or surgery we at least know that he is not totally ignorant of the methods of examination of such cases. I am not sure that the editors rigidly enforce the rules they have laid down for their guidance, but I do venture to hope that their most useful publication will not be rendered less so in the future by a continuation of the present practice, and that they will revert to their former ways. It is in the hope of securing this that I venture to draw public attention to the matter, and to suggest that medical men should more carefully supervise the entries under their names when the circular is sent them. There surely must be other ways of diminishing the bulk of the volume than by leaving out the very information the imparting of which is its *raison d'être*. But if that cannot be done, why not let it grow bigger and charge more for it?

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[1] Brit Med Jour, 1911, vol ii, p 1465

I am, Sir, yours faithfully,

Hampstead, N.W., Sept. 4th, 1913. L. G. GLOVER.

⁂ We agree with Dr. Glover that the curtailment of the entries in the Medical Directory may cause a good deal of trouble. It is not an easy task, despite his assertion, "to write original papers culled from other men's books or brains"; and, as a rule, when this is done editors, however easy-going, detect the imposition.—ED. L.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore (Johns Hopkins University)*: Dr. K. M. Wilson, of Montreal, has been appointed to the chair of Gynæcology, in succession to Dr. Slemons.—*Bologna*: Dr. Riccardo Luzzatto has been recognised as *privat-docent* of Physiological Chemistry.—*Breslau*: Dr. E. Frank has been recognised as *privat-docent* of Medicine.—*Budapest*: Dr. E. Seifert, *privat-docent* of Psychiatry, has been granted the title of Extraordinary Professor.—*Cologne (Academy of Practical Medicine)*: Dr. Kohner, director of the Municipal Children's Hospital, has been appointed *docent* of Pædiatry.—*Frankfort*: Dr. Neubürger, Sanitary Privy Councillor, who is celebrating the sixtieth anniversary of his doctor's degree, has been granted the title of Professor.—*Guatemala*: Dr. Lizardo Estrada has been appointed Professor of Histology and Pathological Anatomy.—*Halle*: Dr. V. Schmieden, *privat-docent* in Berlin, has been appointed Professor of Surgery, in succession to the late Dr. von Bramann; and Dr. Loening and Dr. von Hoesslin, *privat-docenten* of Medicine, have been granted the title of Professor.—*Heidelberg*: Dr. G. Hirschel, *privat-docent* of surgery, has been granted the title of Professor.—*Königsberg*: Dr. M. Fetzer has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Leipsic*: Dr. W. Kruse, professor in Bonn, has been appointed to the chair of Experimental Hygiene, in succession to Dr F. Hofmann, resigned.—*Milwaukee (Marquette University Medical School)*: Dr. J. Vander Erve, professor in the University of Alabama, Mobile, has been appointed to the chair of Physiology.—*Modena*: Dr. Giovanni Marchetti, of Padua, has been recognised as *privat-docent* of External Pathology.—*Munich*: Dr. T. Göth has been recognised as *privat-docent* of Pædiatry.—*Münster*: This, the Westphalian University, has hitherto been limited to three faculties—Law, Roman Catholic Theology, and Philosophy—which last included a scientific and pharmaceutical department. Two additional faculties of Protestant Theology and Medicine are now about to be established. The buildings for the latter, including pathological and hygienic institutes, will cost over 4,000,000 marks (£200,000).—*Naples*: Dr. Stefano Delle Chiaie has been recognised as *privat-docent* of Midwifery and Gynæcology.—*New York (Columbia University College of Physicians and Surgeons)*: Dr. James A. Miller, Dr. Walton Martin, Dr. Austin W. Hollis, and Dr. H. M. Lyle have been appointed Professors of Clinical Medicine.—*Palermo*: Dr. Andrea Cosentino, of Rome, has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Parma*: Dr. Attilio Bertolotti has been recognised as *privat-docent* of Police Sanitation.—*Rome*: Dr. Gaetano Paludetti has been recognised as *privat-docent* of Otology and Laryngology.—*San Francisco (University of California)*: Dr. W. Palmer Lucas, of Boston, has been appointed to the chair of Pædiatry.

DR. JOHN DEAN BUCHANAN, of Blackburn, has been appointed medical officer and school medical officer for Lancaster at a commencing salary of £400 per annum, in succession to Dr. Joseph Cates, who has been appointed to similar positions for the county borough of St. Helens.

THE INSTITUTE OF TROPICAL MEDICINE IN NORTH QUEENSLAND.—Sir W. MacGregor, Governor of Queensland and a medical man, opened recently the new buildings of the Institute of Tropical Medicine at Townsville, North Queensland. The institute owes its origin to the pioneer work of Dr. Frodsham, then Bishop of North Queensland, and Professor Anderson Stuart, Dean of the Faculty of Medicine at the University of Sydney. The Imperial Colonial Office gave £400 to help at the start, Mr. W. K. D'Arcy contributed £1000, and the Universities of Sydney, Melbourne, and Adelaide subscribed. Dr. Anton Breinl, late of the Liverpool School of Tropical Medicine, was appointed director, and temporary premises were secured at the Townsville (North Queensland) Hospital. The Federal Government of Australia are subscribing £4000 a year, and the Government of Queensland £400 a year, towards the expenses.

DUFF HOUSE AS A PRIVATE HOSPITAL.—An interesting scheme has just been inaugurated in Banff, where Duff House, which was presented by the late Duke of Fife to the citizens of Banff and Macduff several years ago, has within the last few months been adapted to the needs and conveniences of a hospital, the first of its kind in the United Kingdom, as the institution is to be devoted to the treatment of diseases of nutrition. An experienced staff has been secured, the senior physician being Dr. Edmund Ivens Spriggs, formerly physician at St. George's Hospital, London. An assistant physician, analytical chemist, fully qualified matron, and nurses complete the staff. Duff House was built between the years 1739 and 1745, and is a splendid building in the Renaissance style of architecture. Internally the house has been modified to suit its new purposes, but nothing has been done to mar the external features of the building. Fine views are obtained from all the windows. The hospital possesses an operating theatre and two fully equipped laboratories, the larger for pathological chemistry, and containing all the apparatus for carrying out analyses in diseases of nutrition on the most scientific principles. There is also an X ray room. Extensive baths have been provided, one set for each sex. These baths include intestinal douche baths, douche-massage baths, electric light, and other medicated and special baths. All the bedrooms are heated with steam. Ample kitchen and staff accommodation has been secured, but throughout care has been taken as far as was possible to preserve the original features of the house, which include some fine old Adams' mantelpieces.

COMPLAINT BY BIRKENHEAD AGAINST LIVERPOOL SANITARY AUTHORITY.—Certain Birkenhead councillors have for a long time had a grievance insomuch as the Liverpool Port Sanitary Authority has an isolation hospital at New Ferry on the Cheshire side of the river, and cases have been sent from Liverpool to New Ferry by ambulances which cross the river in the ordinary traffic boats. Lately some members of the Birkenhead council were nominated as advisory members of the hospital committee of management. The complaint now made is that these members were not summoned to a meeting of the committee the day of their election and before it had been confirmed in the city council. They further complain that they were not invited to be of a party of inspection which was visiting all the Liverpool hospitals, the New Ferry Hospital included. Then one councillor applied at the New Ferry Hospital to be allowed to make a personal inspection; as the hospital is for infectious diseases the keeper refused to allow him to enter without medical authority. A second series of letters of complaint have been published relating to a case of leprosy. This case had been brought to Liverpool from America, whence the patient, a Syrian, had been returned as an undesirable alien. The man had been taken to the New Ferry Hospital in an ambulance by the ordinary ferry boat for goods traffic; this has been made a cause of complaint. As a matter of fact, there must have been the minimum danger in such a case. It is common knowledge that there is a leper living in the heart of Liverpool who goes about the streets in the ordinary way, and no doubt may even go about Birkenhead. This patient has been shown at the meetings of the Liverpool Medical Institution. Doubtless at the next municipal elections, "Vote for —— and no Lepers," will be quite an effective cry.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Buchanan, John Dean, M.B., B Ch., B.A.O.R.U.I., D.P.H.Vict., has been appointed Medical Officer of Health of Lancaster.

Davies, Trevor Berwyn, M.D., B.S. Lond., B Sc., M.R.C.P. Lond., has been appointed Registrar and Pathologist to the Hospital for Women, Soho-square, London.

Dickson, William Arnott, M.D., Ch.B. St. And., F.R.C.S. Edin., D.P.H., has been appointed Tuberculosis Officer for Gloucestershire.

Dykes, Andrew Leslie, M.D. Edin., D P.H. Lond., has been appointed Assistant Medical Officer of Health of the County Borough of Oldham.

Henderson, John, M.D., Ch.B. Glasg., F.R.F.P.S. Glasg., has been appointed Visiting Physician to the Glasgow Royal Infirmary.

Peyton, Thomas Henry, M.D., B.Ch., B A.O. Dub., D.P.H., has been appointed Tuberculosis Officer for Cheshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Argyle and Bute Asylum, Lochgilphead.—Assistant Medical Officer, unmarried. Salary £160 per annum, with apartments, board, and laundry.

Bath, Royal United Hospital.—House Surgeon. Salary £80 per [illegible]

Bed[illegible]

Bel[illegible]

[illegible] bridge Heath, E. [illegible] £100 per annum, [illegible] House Surgeon [illegible] Assistant Medical [illegible] rtments, board, [illegible]

[illegible] lary [illegible] per annum.

Bristol Royal Infirmary.—Three House Surgeons and One House Physician. Salaries at rate of £100 per annum. Also Throat, [illegible]

Bur[illegible]

Can[illegible]

Canterbury Mental Hospital, Canterbury.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, washing, and attendance.

Cardiff, King Edward VII.'s Hospital.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, [illegible]

[illegible] Resident Medical Officer. [illegible] Judd street, St Pancras. [illegible] of £50 per annum, with [illegible] board, &c.

Colchester, Essex County Hospital.—House Physician and House Surgeon. Salary £100 per annum each, with board, residence, and washing.

Dorchester, Dorset County Hospital [illegible] Salary £100 per annum,

Dumfries and Galloway [illegible] Assistant House Surgeo[illegible]

[illegible] Women, [illegible] te of £75 [illegible] Surgeon. [illegible] Salary £72 per annum.

F[illegible]

[illegible] board, [illegible] stitu- [illegible] Salary [illegible] 0 per [illegible] rried. Also [illegible] with residence, board, and washing.

Hammersmith Infirmary and Workhouse, Ducane-road, Wormwood Scrubs, W.—Assistant Medical Superintendent of Infirmary and Assistant Medical Officer of Workhouse (joint appointment). Salary £120 per annum, with board, lodging, washing, and attendance. Also Second Assistant Medical Officer for Infirmary and Workhouse (joint appointment). Salary £110 per annum, with board, lodging, washing and attendance.

Hampstead General and North-West London Hospital.—In-[illegible] six months. Salary at rate of £60 per annum.

Hu[illegible] led. Also [illegible] each case. [illegible] Salary at [illegible] or £80 per [illegible]

[illegible] Officer. Salary at rate of £500 per annum.

[illegible] nt Chemical Pathologist. [illegible] ging.

[illegible] South Warwickshire [illegible] Salary £85 per annum, with board, residence, and laundry.

Lewes Victoria Hospital.—Resident Medical Officer. Salary £120 per annum, with apartments, board, washing, and attendance.

Liverpool Infirmary for Children.—Resident House Surgeon and Resident House Physician for six months. Salary £30 in each case, [illegible]

[illegible] geon and [illegible] n respec- [illegible]

[illegible] artment, [illegible] for six [illegible] Salary [illegible]

[illegible] Cheadle. [illegible] Salary at [illegible]

[illegible] tham.— [illegible] £80 per [illegible]

[illegible] uberculosis.—Resident Surgeon. Salary at rate of £120 per annum, with board, residence, and laundry.

Middlesbrough, North Riding Infirmary.—Senior House Surgeon. Salary at rate of £100 per annum for first six months, with board, residence, and laundry.

[illegible] Committee.—Third Assistant Medical [illegible]

Na[illegible] Commission (England).—Medical [illegible]

NEW HOSPITAL FOR WOMEN.—Clinical Assistants (female).

NEWCASTLE-UPON-TYNE DISPENSARY.—Visiting Medical Assistants. Salary £200 per annum.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, residence, and laundry.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

NORTHAMPTON, COUNTY BOROUGH EDUCATION COMMITTEE.—Dental Surgeon. Salary £250 per annum.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon in [illegible] on for six months.

[illegible] Assistant Medical [illegible] rate of £165 per [illegible] washing.

OXFORD COUNTY ASYLUM, Littlemore, near Oxford.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

PORTSMOUTH ROYAL HOSPITAL.—House Physician for six months. Salary £80 per annum, with board, &c.

PRESTON, COUNTY ASYLUM, Whittingham, Lancs.—Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Medical Officer in charge of Electrical Department. Salary £100 per annum.

ROCHDALE INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with board, residence, and laundry.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, PREVENTION OF CONSUMPTION DEPARTMENT, City-road, E.C.—Medical Officer. Salary £250 per annum.

ROYAL NATIONAL MISSION TO DEEP SEA FISHERMEN.—Medical Men for service at Sea. Salary 4 guineas per week, with board and travelling expenses.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Surgical Registrar. Salary £105 per annum. Also Resident House Surgeon, unmarried, for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five appointments.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Senior Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum, with residence, board, and laundry.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer. Salary at rate of £100 per annum. House Physician. Salary at rate of £90 per annum. House Surgeon. Salary at rate of £75 per annum. Junior House Surgeon and Casualty House Surgeon. Salary at rate of £65 per annum each. All for six months, with board and residence.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SEAMEN'S HOSPITAL SOCIETY.—DREADNOUGHT HOSPITAL, Greenwich: Two House Physicians and Two House Surgeons. Salary £50 per annum each, with board, residence, and washing. ALBERT DOCK HOSPITAL, Connaught-road, E.: House Surgeon; also House Surgeon to Out-patients. Salary £75 per annum each, with board, residence, and washing. All for six months.

SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, rations, &c.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary at rate of £100 per annum, with rooms, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, washing, and residence.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and attendance.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £180 per annum, with apartments, board, washing, attendance, &c.

WAKEFIELD GENERAL HOSPITAL.—Second House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Pathologist and Assistant Medical Officer. Salary £200 per annum, with board, apartments, attendance, and washing.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant Resident House Surgeon and Anæsthetist, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Physician and Junior House Surgeon. Salaries at rate of £75 per annum respectively.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, W.—Two Non-Resident House Surgeons. Salary at rate of £50 and £40 per annum respectively.

WESTMINSTER HOSPITAL (opposite Westminster Abbey).—Assistant House Physician, non-resident but board provided.

WINDSOR, KING EDWARD VII. HOSPITAL FOR WINDSOR, ETON, AND DISTRICT.—Second House Surgeon. Salary £75 per annum, with residence, board, laundry, and attendance.

WREXHAM INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board, lodging, and washing.

YORK DISPENSARY AND MATERNITY HOSPITAL.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Broadford in the county of Limerick; at Clonavaddy, in the county of Tyrone; and at Lymington, in the county of Hants.

A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH, SANITATION, AND HOSPITALS IN HONG-KONG: SEVERE OUTBREAK OF PLAGUE.

AN official report on the Blue-book of Hong-Kong for the year 1912 has been received at the Colonial Office and issued as a Parliamentary paper. From this it appears that the civil population of the colony, according to a census taken in May, 1911, was 456,739, comprising 444,664 Chinese and 12,075 non-Chinese. There has been great activity in regard to building operations to meet the urgent demands for house-room created by the immigration of some 40,000 to 50,000 Chinese who poured into Hong-Kong during 1911. These people were of all classes, and came principally from the neighbouring provinces, seeking refuge from the political unrest which ultimately led to the overthrow of the dynasty and the establishment of a Republican Government in China. Pending the erection of sufficient dwellings for the accommodation of so large an increase in the normal population the existing dwellings became greatly overcrowded, but any very strict enforcement of the overcrowding laws was deemed impossible, while the penalty which had to be paid for this abnormal state of affairs—amounting practically to the conversion of Hong-Kong into a huge refuge camp—was a severe outbreak of plague, no less than 1847 cases being recorded. These cases were generally distributed throughout the city, except in the European business quarter (where only a few cases occurred) and throughout Kowloon, and the most probable determining cause of the epidemic was a considerable augmentation of the rat population consequent on the general overcrowding of the native dwellings. The overcrowding naturally led to a marked increase in the amount of waste food, both in the houses and in the yards and lanes adjacent thereto, and although efforts were made to deal with this excess by improving scavenging, yet it is obvious that where houses are overcrowded with human beings and their belongings the cleanliness of the premises must fall below the average, and refuse of all sorts will lie concealed among the lumber. The rat population depends almost entirely upon the available food-supply, and this large increase in the amount of food refuse would promptly lead to a corresponding increase in the number of susceptible rats by more frequent breeding and larger litters. Plague is endemic among the rats of Hong-Kong, and the infection is known to be carried forward from season to season by the Mus decumanus or drain rat, among which species plague-infected animals are found throughout the year. During the human plague season—February to July—the infection spreads to the house rat (Mus rattus), and although cases of human plague do certainly occur when only infected drain rats are being discovered, the infection being acquired in warehouses, basements, workshops, and outhouses generally, into which these rats are driven by the rain storms flooding their underground haunts, yet the maximum incidence of human infection corresponds exactly with the maximum incidence of the rattus infection, and the main efforts of the Sanitary Department are therefore directed to the exclusion of rats from human dwellings and the limitation of the food-supply of the rat population. The latter is secured by a daily collection of garbage from all dwellings and by the efficient scavenging of lanes and alleys, while the former object is aimed at by the concreting of all ground surfaces, the protecting of drain openings by gratings, and the prohibition of ceilings, wainscotings, and hollow walls. There is unfortunately, however, a very large number of old houses in the colony which possess these hollow walls, constructed of soft bricks, which form ideal resting places for the Mus rattus and enable it to enter the dwellings at night to forage for food; and it is in those districts in which such buildings are most numerous that plague has displayed its greatest incidence. There is no remedy for such faulty construction short of actual demolition of the premises, which is too heroic a measure to be practicable on any extended scale.

The general birth-rate for the year was 9·0 per 1000 among the Chinese community and 16·2 per 1000 among the non-Chinese community, as compared with 6·3 and 19·2 during 1911. The general death-rate for the year was 26·33 per 1000 among the Chinese community and 14·51 among the non-Chinese community, as compared with 21·13 and 13·38 during 1911. The higher death-rate among the Chinese, as compared with the previous year, is due in part to the severe outbreak of plague and in part to the influx of Chinese from the mainland, while the latter cause contributed also to the higher birth-rate. The number of deaths from malaria (432) shows an increase on the previous year (338), which can be accounted for by the exceptional influx of infected persons from the mainland. The deaths from plague numbered 1768, as compared with 253 in 1911 and 23 in 19 0. Small-pox deaths numbered 565—all Chinese with the exception of two British children and one Indian child, all of which were returned as showing no signs of vaccination; only two of the fatal Chinese cases were returned as having been previously vaccinated There were 2317 deaths from respiratory diseases among the Chinese, as compared with 2487 in 1911 Phthisis claimed 757 Chinese victims, while other forms of tuberculosis represent an additional 379 deaths, making a total of 1136, or 12 1 per cent of the total deaths among that community Beri beri was responsible for 231 deaths, as compared with 320 during 1911 and 566 in 1910 During the past few years circulars have been distributed to all large employers of coolie labour, calling their attention to the fact that beri beri is produced by the consumption of white rice as the staple article of diet without a sufficiency of other foods, and advising that beans should be supplied with the rice when fresh meat or fresh fish cannot be afforded, and it is possible that the dissemination of this information may have had some influence in reducing the mortality from this disease Deaths from other diseases were measles, 8, typhoid fever, 87, diphtheria, 21, diarrhœa, 226, *dysentery*, 181, puerperal fever, 11, septic infections, 64; syphilis, 140, poisoning, 12, injuries, 157, alcoholism, 2, developmental diseases, 378, old age, 355, cancer, 43, paralysis and convulsions, 558, heart diseases, 190, pneumonia, 1113, enteritis and gastro enteritis, 97, cirrhosis of liver, 26, peritonitis, 23, nephritis, 83, unknown, 330, total, all causes, 9682 The mean shade temperature for the year at the Royal Observatory, Kowloon (108 feet above mean sea level), was 71 9°, the maximum being 92 5° on Sept 10th and the minimum 45 3° on Dec 28th The hottest month was July with a mean temperature of 83 0°, and the coldest January with a mean temperature of 57 3° The total rainfall of the year was 63 93 inches, as compared with an average of 84 21 inches during the ten preceding years

Government hospitals consist of the Civil Hospital (to which is attached an isolated maternity hospital), the Victoria Hospital for Women and Children, and the Kennedy Town Infectious Diseases Hospital There is an observation station capable of accommodating 1500 persons in the event of an outbreak of infectious disease on board a ship arriving in the harbour The Civil Hospital contains 150 beds in 19 wards 2731 in patients and 15 177 out patients were treated during 1912 The Maternity Hospital contains 12 beds for Europeans and four for Asiatics The Victoria Hospital at the Peak contains 41 beds and during 1912 234 patients were under treatment there At Kennedy Town Hospital, which contains 26 beds, 42 cases were treated, 35 being small pox The Tung Wa Hospital, opened in 1872 is mainly supported by the voluntary subscriptions of Chinese but receives an annual grant of 8000 dollars from the Government Only Chinese are treated in this institution Chinese as well as European methods of treatment are employed in accordance with the wishes expressed by the patients or their friends About half the number are now treated by Western methods The hospital, managed by a committee of Chinese gentlemen is under the supervision of a visiting physician, who is a member of the medical department, whilst a Chinese house surgeon trained in Western medicine, is a member of the hospital staff There are 323 beds and 4279 patients were accommodated during 1912 The Tung Wa also maintains a branch hospital for small pox cases (Chinese only), it contains 58 beds The Alice Memorial and Affiliated Hospitals are managed and controlled by the missionaries resident in Hong Kong, agents of the London Missionary Society, and consist of the Alice Memorial Hospital, opened in 1887, the Nethersole Hospital, opened in 1893, the Alice Memorial Maternity Hospital, opened in 1904, and the Ho Miu Ling Hospital, opened in 1906 The number of in patients in 1912 was 1600 and the number of labours in the Maternity Hospital 351 The Government makes a grant of $300 per annum to these hospitals To avoid the complete seclusion from friends and relatives which removal of Chinese plague patients to the Kennedy Town Infectious Diseases Hospital entailed, four District Plague Hospitals are now maintained by Chinese in various parts of the colony These hospitals are under the management of the Chinese Public Dispensaries Committee and receive a grant of $2000 a year from the Government The new Kwong Wa Hospital for Chinese in the Kowloon Peninsula was opened on Oct 9th, 1911 It occupies a site of three acres and as designed will ultimately provide accommodation for 210 patients The hospital will eventually be *under the same management as the Tung Wa Hospital* It receives a grant of $8500 per annum from the Government

SHOCKS IN THE USE OF ELECTRICAL ACCESSORIES

To the Editor of THE LANCET

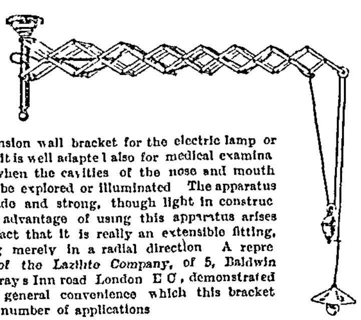
SIR —Some hospitals staffs and doctors have no doubt experienced unnecessary shocks in using their electrical accessories when energy is taken from the more usual continuous current public supply With an alternating current supply similar shocks are rarely experienced, as in such case a transformer is invariably used having double winding the low pressure side of which is entirely separate from the live side The majority of small medical electrical instruments—particularly foreign ones—such as lamps, cauteries, &c, are wired up singly, using their metal frames as the other poles of the circuits. As a rule it is *easily possible to connect such instruments two ways to the supply at* several points Whenever it happens that in coupling up the flexibles of such instruments their metal frames are connected so that either of the live (or outer) conductors of the supply are fed through the uninsulated parts, then shocks to operators or patients are almost inevitable These may be of quite a serious nature, particularly to patients Good insulation of the ordinary wiring and use of a resistance box (sometimes incorrectly called a transformer) will not prevent shocks in such cases

I venture to think that a wider knowledge of how to avoid this danger on a continuous current system, in an inexpensive manner, would be valuable to your readers All socket and plug connexions should be of the concentric type which cannot be reversed If, however, existing plugs are of the two-pin type, one plug leg can easily be made thicker than the other If lampholder and adapter connexions are used an extra pin in adapter and corresponding slot in holder will ensure that only one way of connecting up can be effected Once the *correct polarity has then been established, so that the corporation live* side feeds the insulated pole of instruments, no further trouble will be experienced so long as the public supply connexions are not reversed at any other points such as fuse or switchboards, but this is not a likely possibility Trusting this may be of some use,

I am, Sir, yours faithfully,

Manchester, Sept 5th, 1912 H C CREWS, M I E E.

THE "LAZILITE" WALL BRACKET



THE accompanying illustration will indicate the numerous directions in which this extension bracket can be usefully applied Primarily designed as an extension wall bracket for the electric lamp or telephone, it is well adapted also for medical examinations, as when the cavities of the nose and mouth require to be explored or illuminated The apparatus is well made and strong, though light in construction The advantage of using this apparatus arises from the fact that it is really an extensible fitting, not acting merely in a radial direction A representative of the Lazilite Company, of 5, Baldwin Gardens Gray's Inn road London E C, demonstrated to us the general convenience which this bracket offers in a number of applications

THE MEETINGS OF THE BRITISH ASSOCIATION.

To the Editor of THE LANCET.

SIR —I observe that in reply to a correspondent in THE LANCET of Sept 6th you print a list of the years and places of meeting of the International Medical Congresses, and having regard to the British Association meeting now being held at Birmingham, I shall be glad if you would also supply a similar list relating to that association I do not wish to impose upon you the functions of a Haydn's Dictionary of Dates, but such information is always interesting, and now that I want it I have not it at hand It is not always convenient to purchase a copy of a date book annually

I am, Sir, yours faithfully,

Sept 8th, 1912. W. P.

*** The following is a list of the years and cities in which the meetings of the British Association have been held No doubt the organisation of the British Association publish a list in some of their documents, while the information can be found by consulting a set of Whitaker's Almanacks —1831, York, 1832, Oxford, 1833, Cambridge; 1834, Edinburgh, 1835, Dublin 1836, Bristol, 1837, Liverpool, 1838, Newcastle, 1839, Birmingham, 1840 Glasgow, 1841, Plymouth, 1842, Manchester 1843, Cork, 1844, York (2), 1845, Cambridge (2); 1846, Southampton, 1847, Oxford (2), 1848, Swansea, 1849, Birmingham (2), 1850, Edinburgh (2), 1851, Ipswich, 1852, Belfast; [illegible] Glasgow (2), 1856, Cheltenham; [illegible] rdeen, 1860 Oxford (3); [illegible] 1863, Newcastle (2), 1864, [illegible] tingham, 1867, Dundee; 1868, Norwich, [illegible] pool (3), 1871, Edinburgh (3), 1872, Brigh [illegible] (2), 1875 Bristol (2), 1876, Glasg [illegible] Dublin (3), 18 9, Sheffield, 1880, Swansea (2), 1881, York (3), 1882, Southampton (2); 1883, Southport, 1884, Montreal, 1885 Aberdeen (2), 1886, Birmingham (4), 1887, Manchester (3), 1888, Bath (2), 1889, Newcastle (3); 1890, Leeds (2), 1891, Cardiff, 1892, Edinburgh (4), 1893 Nottingham (2), 1894, Oxford (5), 1895, Ipswich (2), 1896, Liverpool (4); 1897, Toronto, 1898, Bristol (3), 1899, Dover, 1900, Bradford (2); 1901, *Glasgow* (4), *1902 Belfast* (3), 1903, Southport (2), 1904, Cambridge (4), 1905, Cape Town, 1906, York (4); 1907, Leicester;

estimation of organic substances when they are present in complex mixtures. But the organic chemist of the nineteenth century did not develop the art of analysis on these lines. Of the myriad substances, natural or artificial, known to him at the most a few score could be separated quantitatively from mixtures, or estimated with any accuracy. It was a professional or commercial call rather than scientific need which evolved such processes as were available, so that this side of chemical activity developed only on limited and special lines.

All these circumstances were, of course, inevitable. Organic chemistry in Liebig's later years was concerned with laying its own foundations as a pure science, and for the rest of the century with building a giant, self-contained edifice upon them. The great business of developing the concepts of molecular structure and the wonderful art of synthesis were so absorbing as to leave neither leisure nor inclination for extraneous labours. But it is easy to recognise that near the beginning of the present century a sense of satiety had arisen in connexion with synthetic studies carried out for their own sake. Workers came to feel that, so far as the fundamental theoretical aspects of chemistry were concerned, that particular side of organic work had played its part. In numerous centres, instead of only in a few, quite other aspects of the science were taken up—in particular, the study of the dynamic side of its phenomena. The historian will come to recognise that a considerable revolution in the chemical mind coincided roughly with the beginning of this century. Among the branches which are fated to benefit by this revolution—it is to be hoped in this country as well as others—is the chemistry of the animal.

But I would like to say that I do not find, on reading the contributions to science of those who, as professed physiological chemists, ploughed lonely furrows in the last century, any justification for the belief that the work done by them was amateurish or inexact; no suggestion that anything inherent in the subject is prone to lead to faults of the kind. Truly these workers had to share ignorance which was universal, and sometimes, compelled by the urgency of certain problems, had perforce to do their best in regions that were dark. But they knew their limitations here as well as their critics did, and relied for their justification upon the application of their results, which was often not understood at all by their critics.

There is little doubt, for instance, that it was the earlier attempts of various workers to fractionate complex colloid mixtures that led to the cynical statement that "*Thierchemie* is *Schmierchemie.*" But the work thus done, even such work as Kühne's upon the albumoses and peptones, had important bearings, and led indirectly to the acquirement of facts of great importance to physiology and pathology.

In connexion with enzyme catalysis, the work done at this time by physiological chemists was in the main of a pioneer character, but it was urgently called for and had most useful applications. By the end of the century it had become of great importance.

As for analytical work involving a separation of complex organic mixtures the biochemist of the last century was in this ahead of the pure organic chemist, as the development of urinary analysis if considered alone will show. In countless directions the acquirement of exact knowledge concerning animal chemistry has been continuous.

The Chemical Responses of the Tissues.

[Here Professor Gowland Hopkins drew attention to certain of the various steps by which we have arrived at a knowledge of the synthetic powers of the animal body. Commencing with the original discovery of Andrew Ure that an increased excretion of hippuric acid followed upon the exhibition of benzoic acid, he detailed the experiments of Bunge and Schmiedeberg, and alluded to the question of how far the body can extend its supply of glycine when stimulated by increasing doses of benzoic acid. He next dealt with the researches of Baumann and the syntheses where the sulphur group plays a part, in which substances are so treated in the body as to reappear in conjugation with protein derivatives; with the syntheses in which the substance supplied by the body is derived, not from protein, but from carbohydrate; with the study of the fate of camphor in the body; and with the methylation undergone by certain compounds. He continued as follows:—]

The full significance of all such happenings will not understood unless it be remembered that a nice adjustm of molecular structure is in many cases necessary to prep the foreign substance for synthesis. Preliminary regulat oxidations or reductions may occur so as to secure, example, the production of an alcoholic or phenolic hydrox group, which then gives the opportunity for condensati which was otherwise absent.

I have touched only on the fringes of this domain. T body of knowledge available concerning it has not been w systematically, and the fate of a multitude of other types organic substances remains for investigation. The know facts have, one feels, an academic character in the view the physiologist, and even in that of the pharmacologist, t whom we owe most of our knowledge about them. But, i my opinion, the chemical response of the tissues to th chemical stimulus of foreign substances of simple constitu tion is of profound biological significance. Apart from it biological bearings as the simplest type of immunity reaction it throws vivid light, and its further study must throw fres light on the potentialities of the tissue laboratories.

In a brilliant address delivered before the Faculty o Medicine of the University of Leeds, Lord Moulton likened the process of recovery in the tissues after bacterial invasion to the generation of forces which establish what is known to the naval architect as the "righting couple." This grows greater the greater the displacement of a ship, and finally may become sufficient to overpower the forces tending to make her heel over. It is surely striking to realise that the establishment of the "righting couple" which brings the tissue cell back to equilibrium after the disturbances due to the intrusion of simple molecules calls for such a complex of chemical events, events which ultimately result in the modification of the disturbing substance and its extrusion from the tissues concerned in a form less noxious to the body as a whole.

Oxidation, reduction, desaturation, alkylation, and condensation, and any or all of these processes, may be brought *de novo* into play as the result of the intrusion of a new molecule into reactions which were in dynamic equilibrium. It is clear that chemical systems capable of so responding to what may be termed specific chemical stimuli must not be neglected by any student of chemical dynamics. The physiologist has for many years been engaged upon careful analyses of the mechanical and electric responses to stimulation. In the phenomena before us we find "responses" which are equally fundamental. If we do not study them exhaustively we shall miss an important opportunity for throwing light upon the nature of animal tissues as chemical systems.

One reason which has led the organic chemist to avert his mind from the problems of biochemistry is the obsession that the really significant happenings in the animal body are concerned in the main with substances of such high molecular weight and consequent vagueness of molecular structure as to make their reactions impossible of study by his available and accurate methods. There remains, I find, pretty widely spread, the feeling—due to earlier biological teaching—that, apart from substances which are obviously excreta, all the simpler products which can be found in cells or tissues are as a class mere dejecta, already too remote from the fundamental biochemical events to have much significance. So far from this being the case, recent progress points in the clearest way to the fact that the molecules with which a most important and significant part of the chemical dynamics of living tissues is concerned, are of a comparatively simple character. The synthetic reactions which we have already considered surely prepare us for this view; but it may be felt that, however important, they represent abnormal events, while the study of them has been largely confined to determining the end-products of change. Let me now turn to normal metabolic processes and to intermediary reactions.

Normal Metabolism and Intermediary Reactions.

We know first of all that the raw material of metabolism is so prepared as to secure that it shall be in the form of substances of small molecular weight; that the chief significance of digestion, indeed, lies in the fact that it protects the body from complexes foreign to itself. Abderhalden has ably summarised the evidence for this, and has shown us also that, so far as the known constituents of our dietaries are concerned, the body is able to maintain itself when these are supplied to it wholly broken down into simple *bausteine*, any one of which could be artificially synthesised with the aid of our present knowledge. Dealing especially with the proteins, we have good reason to believe that the individual constituent amino-acids, and not elaborate complexes of these, leave the digestive tract, while Folin, Van Slyke, and Abel have recently supplied us with suggestive evidence for the fact that the individual amino-acids reach the tissues as such and there undergo change. But still more important, when things are viewed from my present standpoint, is the fact that recent work gives clear promise that we shall ultimately be able to follow, on definite chemical lines, the fate in metabolism of each amino-acid individually; to trace each phase in the series of reactions which are concerned in the gradual breakdown and oxidation of its molecule. Apart from the success to which it has already attained, the mere fact that the effort to do this has been made is significant. To those at least who are fami[illegible] thought of 30 years ago, it [illegible] So long as there were any [illegible] that the carbonic acid and urea which leave the body originate from oxidations occurring wholly in the vague complex of protoplasm, or at least that any intermediate products between the complex and the final excreta could only be looked for in the few substances that accumulate in considerable amount in the tissues (for instance, the creatin of muscle), the idea of seriously trying to trace within the body a series of processes which *begin* with such simple substances as tyrosin or leucin was as foreign to thought as was any conception that such processes could be of fundamental importance in metabolism. However vaguely held, such beliefs lasted long after there was justification for them; their belated survival was due, it seems to me, to a certain laziness exhibited by physiological thought when it trenched on matters chemical; they disappeared only when those accustomed to think in terms of molecular structure turned their attention to the subject. But it should be clearly understood that the progress made in these matters could only have come through the work and thought of those who combined with chemical knowledge trained instinct and feeling for biological possibilities.

Methods of Investigation.

Our knowledge of the fate of amino-acids is arrived at by the combination of many ingenious methods of study. It is easy in the animal, as in the laboratory, to determine the end-products of change; but, when the end result is reached in stages, it is by no means easy to determine what are the stages, since the intermediate products may elude us. And yet the whole significance of the processes concerned is to be sought in the succession of these stages. In animal experiments directed to the end under consideration, investigators have relied first of all upon the fact that the body, though the seat of a myriad reactions and capable perhaps of learning, to a limited extent and under stress of circumstances, new chemical accomplishments, is in general able to deal only with what is customary to it This circumstance has yielded two methods of determining the nature of intermediate products in metabolism. Considerations of molecular structure will, for instance, suggest several possible lines along which a given physiological substance may be expected to undergo change. We may test these possibilities by administering various derivatives of the substance in question. Only those which prove on experiment to be fully metabolised, or to yield derivatives in the body identical with those yielded by the parent substance, can be the normal intermediate products of its metabolism. All others may be rejected as not physiological. In a second method dependent upon this eclecticism of the body, substances are administered which so far differ from the normal that, instead of suffering a complete breakdown, they yield some residual derivative which can be identified in the excreta, and the nature of which will throw light upon the chemical mechanism which has produced it. For instance, a substance with a resistant (because abnormal) ring structure, but possessing a normal side chain, may be used to demonstrate how the side chain breaks down. Again, we may sometimes obtain useful information by administering a normal substance in excessive amounts, when certain intermediate products may appear in the excreta. Another most profitable method of experiment is that in which the substance to be studied is submitted to the influence of isolated organs instead of to that of the whole animal. Under these conditions, a series of normal reactions may go on, but with altered relative velocities, so that intermediate products accumulate; or again when, as may happen, the successive changes wrought upon a substance by metabolism occur in different organs of the body, this use of isolated organs enables us to dissect, as it were, the chain of events. Extraordinarily profitable have been the observations made upon individuals suffering from those errors of metabolism which Dr. Garrod calls "metabolic sports, the chemical analogues of structural malformations." In these individuals Nature has taken the first essential step in an experiment by omitting from their chemical structure a special catalyst which at one point in the procession of metabolic chemical events is essential to its continuance. At this point there is arrest, and intermediate products come to light. Use of this ready-made experimental material has added greatly to our knowledge of intermediate metabolism. Admirable use, too, has been made of the somewhat similar conditions presented by diabetes, clinical and experimental. Every day our knowledge of the dynamics of the body grows upon these lines.

The Direct Method of Attack.

I know that the history of all these efforts is familiar to you, but I am concerned to advertise the fact that our problems call for ingenuity of a special sort, and to point out that an equipment in chemical technique alone would not have sufficed for the successful attack which has been made upon them. But I am even more concerned to point out that the direct method of attack has been too much neglected, or has been in the hands of too few; I mean the endeavour to separate from the tissues further examples of the simpler products of metabolic change, no matter how small the amount in which they may be present; an endeavour which ought not to stop at the separation and identification of such substances, but to continue till it has related each one of them to the dynamic series of reactions in which each one is surely playing a part. The earliest attempts at tracing the intermediate processes of metabolism looked for information to the products which accumulate in the tissues, but it seemed to be always tacitly assumed that only those few which are quantitatively prominent could be of importance to the main issues of metabolism. It is obvious, however, upon consideration, that the degree to which a substance accumulates is by itself no measure of its metabolic importance; no proof as to whether it is on some main line of change, or a stage in a quantitatively unimportant chemical by-path. For, if one substance be changing into another through a series of intermediate products, then, as soon as dynamical equilibrium has been established in the series (and to such equilibrium tissue processes always tend) the rate of production of any one intermediate product must be equal to the rate at which it changes into the next, and so throughout the series. Else individual intermediate products would accumulate or disappear, and the equilibrium be upset. Now the rate of chemical change in a substance is the product of its efficient concentration and the velocity constant of the particular reaction it is undergoing. Thus the relative concentration of each intermediate substance sharing in the dynamic equilibrium, or, in other words, the amount in which we shall find it at any moment in the tissue, will be inversely porportional to the velocity of the reaction which alters it. But the successive velocity constants in a series of reactions may vary greatly, and the relative accumulation of the different intermediate products must vary in the same degree. It is certain that in the tissues very few of such products accumulate in any save very small amount, but the amount of a product found is only really of significance if we are concerned with any function which it may possibly possess. It is of no significance as a measure of the quantitative importance of the dynamical events which give rise to it.

To take an instance. The substance creatin has always asserted itself in our conceptions concerning nitrogenous metabolism because of the large amount in which it is found in the muscle It may be of importance *per se*, and [illegible] important as an indica[illegible] but we must remember [illegible]imberg, Kutscher, and others has shown us that a great number of nitrogenous basic bodies exist in muscle in minute amounts. Maybe we shall need to know about each of these all that we now know, or are laboriously trying to know, about creatin before the dynamics of basic nitrogen in muscle become clear. Fortunately for the experimenter, most of the raw materials required for tissue analysis are easily obtainable; there is no reason save that of the labour involved why we should not work upon a ton of muscle or a ton of gland tissue.

I am certain that the search for tissue products of simple constitution has important rewards awaiting it in the future, so long as physiologists are alive to the dynamical significance of all of them. Such work is laborious and calls for special instincts in the choice of analytical method, but, as I mentioned in an earlier part of this address, I am sure that high qualifications as an analyst should be part of the equipment of a biological chemist.

[Here Professor Gowland Hopkins dealt with the results of this work upon intermediate metabolism, instancing the action of the hormones and adrenalin, and stating that the chief thing to realise is that as a result of modern research the conception of metabolism in block is, as Garrod puts it, giving place to that of metabolism in compartments. He continued:—]

THE COMPLEXITY OF BIOPLASMIC PROBLEMS.

It is from the behaviour of simple molecules we are learning our most significant lessons. Now interest in the chemical events such as those we have been dealing with may still be damped by the feeling that, after all, when we go to the centre of things, to the bioplasm, where these processes are initiated and controlled, we shall find a *milieu* so complex that the happenings there, although they comprise the most significant links in the chain of events, must be wholly obscure, when viewed from the standpoint of structural organic chemistry. I would like you to consider how far this is necessarily the case.

The highly complex substances which form the most obvious part of the material of the living cell are relatively stable. Their special characters, and in particular the colloidal condition in which they exist, determine, of course, many of the most fundamental characteristics of the cell: its definite yet mobile structure, its mechanical qualities, including the contractility of the protoplasm, and those other colloidal characters which the modern physical chemist is studying so closely. For the dynamic chemical events which happen within the cell, these colloid complexes yield a special *milieu*, providing, as it were, special apparatus and an organised laboratory. But in the cell itself, I believe, simple molecules undergo reactions of the kind we have been considering. These reactions, being catalysed by colloidal enzymes, do not occur in a strictly homogeneous medium, but they occur, I would argue, in the aqueous fluids of the cell under just such conditions of solution as obtain when they progress under the influence of enzymes *in vitro*.

There is, I know, a view which, if old, is in one modification or another still current in many quarters. This conceives of the unit of living matter as a definite, if very large and very labile molecule, and conceives of a mass of living matter as consisting of a congregation of such molecules in that definite sense in which a mass of, say, sugar is a congregation of molecules, all alike to one another. In my opinion, such a view is as inhibitory to productive thought as it is lacking in basis. It matters little whether in this connexion we speak of a "molecule" or, in order to avoid the fairly obvious misuse of a word, we use the term "biogen," or any similar expression with the same connotation. Especially, I believe, is such a view unfortunate when, as sometimes, it is made to carry the corollary that simple molecules, such as those provided by foodstuffs, only suffer change after they have become in a vague sense a part of such a giant molecule or biogen. Such assumptions became unnecessary as soon as we learnt that a stable substance may exhibit instability after it enters the living cell, not because it loses its chemical identity, and the chemical properties inherent in its own molecular structure, by being built into an unstable complex, but because in the cell it meets with agents (the intracellular enzymes) which catalyse certain reactions of which its molecule is normally capable.

Exactly what sort of material might, in the course of cosmic evolution, have first come to exhibit the elementary characters of living stuff, a question raised in the Presidential Address which so stirred us last year, we do not, of course, know. But it is clear that the living cell as we now know it is not a mass of matter composed of a congregation of like molecules, but a highly differentiated system; the cell, in the modern phraseology of physical chemistry, is a system of co-existing phases of different constitutions. Changes in any one of these constituent phases, including the metaplasmic phases, must affect the equilibrium of the whole cell system, and because of this necessary equilibrium-relation it is difficult to say that any one of the constituent phases, such as we find *permanently* present in a living cell, even a metaplasmic phase, is less essential than any other to the "life" of the cell, at least when we view it from the standpoint of metabolism. It is extremely difficult and probably impossible by any treatment of the animal to completely deprive the liver of its glycogen deposits so long as the liver cells remain alive. Even an extreme variation in the quantity is in the present connexion without significance because, as we know, the equilibrium of a polyphasic system is independent of the mass of any one of the phases; but I am inclined to the bold statement that the integrity of metabolic life of a liver cell is as much dependent on the co-existence of metaplasmic glycogen, however small in amount, as upon the co-existence of the nuclear material itself; so in other cells, if not upon glycogen, at least upon other metaplasmic constituents.

Now we should refuse to speak of the membrane of a cell, or of its glycogen store, as living material. We should not apply the term to the substances dissolved in the cell-juice, and, indeed, would hardly apply it to the highly differentiated parts of the bioplasm if we thought of each detail separately. We are probably no more justified in applying it, when we consider it by itself, to what, as the result of microscopic studies, we recognise as "undifferentiated" bioplasm. On ultimate analysis we can hardly speak at all of living matter in the cell; at any rate, we cannot, without gross misuse of terms, speak of the cell life as being associated with any one particular type of molecule. Its life is the expression of a particular dynamic equilibrium which obtains in a polyphasic system. Certain of the phases may be separated, mechanically or otherwise, as when we squeeze out the cell-juices, and find that chemical processes still go on in them; but "life," as we instinctively define it, is a property of the cell as a whole, because it depends upon the organisation of processes, upon the equilibrium displayed by the totality of the co-existing phases.

The Processes taking place in the Cell.

Important phenomena in the cell, involving simple reactions of the type which we have been discussing, occur in ordinary crystalloid solution. We are entitled to distinguish fluid (or more fluid) phases in the cell. I always think it helpful in this connexion to think of the least differentiated of animal cells—to consider, for instance, the amœba. In this creature a fluid phase comes definitely into view with the appearance of the food vacuole. In this vacuole digestion goes on, and there can be no doubt, from the suggestive experimental evidence available, that a digestive enzyme, and possibly two successive enzymes (a pepsin followed by a trypsin), appear in it. It is now generally admitted that digestion in the amœba, though intracellular, is metaplasmic. The digestion products appear first of all in simple aqueous solution. Is it not unjustifiable to assume that the next step is a total "assimilation" of the products, a direct building up of all that is produced in the vacuole into the complexes of the cell? If there be any basis for our views concerning the specificity of, say, the tissue proteins, they must apply to the amœba no less than to the higher animal, and we must picture the building-up of its specific complexes as a selective process. The mixture of amino-acids derived from the proteins of the bacteria or other food eaten by it may be inharmonious with their balance in the amœba. Some have to be more directly dealt with, by oxidation or otherwise. If the digestive hydrolysis occur outside the complexes, we may most justifiably assume that other preparative processes also occur outside them. We need not think of a visible vacuole as the only seat of such changes. Similar fluid phases in the cell may elude the microscope, and the phenomena would be just as significant if reactions occur in the water imbibed by the colloids of the cell or present in the bioplasm. It is always important to remember that 75 per cent. of the cell substance consists of water.

All of these considerations we may apply to the tissue cells of the higher animal. To my mind, at least, the following considerations appeal. It is noteworthy that all the known complexes of the cells—the proteins, the phosphorous complexes, the nucleic acids, &c.—are susceptible to hydrolysis by catalytic agents, which are always present, or potentially present. If the available experimental evidence be honestly appraised, it points to the conclusion that only to hydrolytic processes are the complexes unstable. Under the conditions of the body they are, while intact, resistant to other types of change, their hydrolytic products being much more susceptible. Since hydroclastic agents are present in the cell we must suppose that there is at any moment equilibrium between the complexes and their water soluble hydrolytic products, though the amount of the latter present at any moment may be very small. Now, I think we are entitled to look upon assimilation and dissimilation, when very strictly defined, as being dependent upon changes in this equilibrium alone. They are processes of condensation and hydrolysis respectively. Substances which are foreign to the normal constitution of the complexes—and these comprise not only strictly extraneous substances, but material for assimilation not yet ready for direct condensation, or metabolites which are no longer simple hydrolytic products—do not enter or re enter the complexes. They suffer change within the cell, but not as part of the complexes. When, for instance, a supply of amino acids transferred from the gut reaches the tissue cell they may be in excess of the contemporary limits of assimilation or, once more, individual acids may not be present in the harmonious proportion required to form the specific proteins in the cell. Are we to suppose that all nevertheless become an integral part of the complexes before the harmony is by some mysterious means adjusted? I think rather that the normality of the cell proteins is maintained by processes which precede actual condensation or assimilation. Conversely, when the cell balance sets towards dissimilation the amino acids liberated by hydrolysis suffer further change outside the complexes. So when a foreign substance—say benzoic acid—enters the cell we have no evidence, experimental or other, to suggest that such a body ever becomes an integral part of the complexes. Rather does it suffer its conjugation with glycine in the fluids of the cell. So also with cases of specific chemical manufacture in organs. When, for instance, adrenalin—a simple, definite, crystalline body—appears in the cells of the gland which prepares it, are we to suppose that its molecule emerges in some way ready made from the protein complexes of the gland, rather than that a precursor derived from a normal hydrolytic product of these proteins or from the food supply is converted into adrenalin by reactions of a comprehensible kind, occurring in aqueous solution, and involving simple molecules throughout? While referring to adrenalin I may comment upon the fact that the extraordinarily wide influence now attributed to that substance is a striking *illustration of the importance of simple molecules in the* dynamics of the body.

It should be, of course, understood, though the consideration does not affect the essential significance of the views I am advancing, that the isolation of reactions in particular phases of the cell is only relative. I have before emphasised the point that the equilibrium of the whole system must, to a greater or less degree, be affected by a change in any one phase. A happening of any kind in the fluid phases must affect the chemical equilibrium and, no less the physicochemical equilibrium *between them and the complexes or* less fluid phases. A drug may have an "action" on a cell, even though it remain in solution, and it may have a specific action because its molecular constitution leads it to intrude into and modify the course of, some one, rather than any other, of the numerous simple chemical reactions proceeding in the cells of different tissues.

THE DIRECTION AND CONTROL OF THE REACTIONS

But I must now turn from consideration of the reactions themselves to that of their direction and control. It is clear that a special feature of the living cell is the organisation of chemical events within it. So long as we are content to conceive of all happenings as occurring within a biogen or living molecule all directive power can be attributed in some vague sense to its quite special properties.

But the last 15 years have seen grow up a doctrine of a quite different sort which, while it has difficulties of its own, has the supreme merit of possessing an experimental basis and of encouraging by its very nature further experimental work. I mean the conception that each chemical reaction within the cell is directed and controlled by a specific catalyst. I have already more than once implicitly assumed the existence of intracellular enzymes. I must now consider them more fully.

Intracellular Enzymes

Considering the preparation made for it by the early teaching of individual biologists, the belief in the endo enzyme as a universal agent of the cell was slow to establish itself, though in the absence of abundant experimental proof scepticism was doubtless justified. So long as the ferments demonstrated as being normally attached to the cell were only those with hydroclastic properties, such as were already familiar in the case of secreted digestive ferments, the imagination was not stirred. Only with Buchner's discovery of zymase and cell free alcoholic fermentation did the faith begin to grow. Yet, a quarter of a century before, Hoppe Seyler had written (when discussing the then vexed question of nomenclature, as between organised and unorganised "ferments") "The only question to be determined is whether that hypothesis is too bold which assumes that in the organism of yeasts there is a *substance* [the italics are mine] that decomposes sugar into alcohol and CO_2. I hold the hypothesis to be *necessary* because *fermentations* are chemical events and must have chemical causes." If in the last sentence of this quotation we substitute for the word "fermentations" the words "the molecular reactions which occur within the cell" Hoppe Seyler would, I think, have been equally justified.

Remembering, however, the great multiplicity of the reactions which occur in the animal body, and remembering the narrow specificity in the range of action of an individual enzyme, we may be tempted to pause on contemplating the myriad nature of the army of enzymes that seems called for. But before judging upon the matter the mind should be prepared by a full perusal of the experimental evidence. We must call to mind the phenomena of autolysis and all the details into which they have been followed, the specificity of the proteolytic ferments concerned, and especially the evidence obtained by Abderhalden and others, that tissues contain numerous enzymes, of which some act upon only one type of polypeptide and some specifically on other polypeptides. We must remember the intracellular enzymes that split the phosphorus complexes of the cell, the lipases, the amylases, and the highly specific invert ferments, each adjusted to the hydrolysis of a particular sugar. We have also to think of a large group of enzymes acting specifically upon other substances of simple constitution, such as the arginase of Kossel and Dakin, the enzyme recently described by Dakin which acts with great potency in converting pyruvic aldehyde into lactic acid, and many others. Nothing could produce a firmer belief in the reality and importance of the specialised enzymes of the tissues than a personal repetition of the experiments of Walter Jones Schittenhelm, Wiechowski, and others upon the agents involved in the breakdown of nucleic acids, each step in the elaborate process involves a separate catalyst. In this region of metabolism alone a small army of independent enzymes is known to play a part, each individual being of proven specificity. The final stages of the process involve oxidations which stop short at the stage of uric acid in man, but proceed to that of allantoin in most animals. It is very instructive to observe the clean, complete oxidation of uric acid to allantoin which can be induced *in vitro* under the influence of Wiechowski's preparations of the uric acid oxidase, especially if one recalls at the same time in proof of its physiological significance, that this oxidase, though always present in the tissues of animals, which excrete allantoin, is absent from those of man, who does not.

Acquisition by the Living Cell of New Catalytic Agents

With these examples before us, we conclude that all metabolic tissue reactions are catalysed by enzymes, and, knowing the general properties of these, we have every right to conclude that all reactions may be so catalysed in the synthetic as well as in the opposite sense. If we are astonished at the vast array of specific catalysts which must be present in the tissues, there are other facts which increase the complexity of things. Evidence continues to accumulate from the biological side to show that as a matter of fact the living cell can acquire *de novo* as the result of special stimulation new catalytic agents previously foreign to its organisation.

It is certain from very numerous studies made upon the lower organisms, and especially upon bacteria that the cell may acquire new chemical powers when made to depend upon an unaccustomed nutritive medium. I must be content to quote a single instance out of many. Twort has shown that certain bacteria of the coli-typhosus group can be trained to split sugars and alcohols which originally they could not split at all. A strain of B. typhosus which after being grown upon a medium containing dulcite had acquired the power of splitting this substance, retained it permanently, even after passage through the body of the guinea-pig, and cultivation upon a dulcite-free medium. Similar observations have been made upon the Continent by Massini and Burri; the latter showed by ingenious experiments that all the individuals of a race which acquires such a new property have the same potency for acquiring it. Yet no one will deny that the appearance of a new enzyme is involved in this adjustment of the cell to a new nutritive medium.

We have not, it is true, so much evidence for similar phenomena in the case of the higher animals. The milk-sugar splitting ferment may be absent from the gut epithelium before birth, and in some animals may disappear again after the period of suckling, but here we probably have to do with some simple alternation of latency and activisation. But among the protective ferments studied by Abderhalden we have, perhaps, cases in which specific individuals appear *de novo* as the result of injecting foreign proteins, &c., into the circulation. Consider, moreover, the case of the reactions called out by simpler substances. We have seen that an enzyme separable from the kidney tissue can catalyse the synthesis no less than the breakdown of hippuric acid. Now, the cells of the mammalian kidney have always had to deal with benzoic acid or chemical precursors of benzoic acid, and the presence of a specific enzyme related to it is not surprising. But living cells are not likely to have ever been in contact with, say, bromo-benzol until the substance was administered to animals experimentally. Yet a definite reaction at once proceeds when that substance is introduced into the body. It is linked up, as we have seen, with cystein. Now, this reaction is not one which would proceed in the body uncatalysed; if it be catalysed by an enzyme, all that we know about the specificity of such agents would suggest that a new one must appear for the purpose. I have allowed myself to go beyond ascertained facts in dealing with this last point. But once we have granted that specific enzymes are real agents in the cell, controlling a great number of reactions, I can see no logical reason for supposing that a different class of mechanism can be concerned with any particular reaction.

THE POSSIBILITY OF AN UNDERLYING SIMPLICITY.

If we are entitled to conceive of so large a part of the chemical dynamics of the cell as comprising simple metaplasmic reactions catalysed by independent specific enzymes, it is certain that our pure chemical studies of the happenings in tissue extracts, expressed cell juices, and the like, gain enormously in meaning and significance. We make a real step forward when we escape from the vagueness which attaches to the "bioplasmic molecule" considered as the seat of all change. But I am not so foolish as to urge that the step is one towards obvious simplicity in our views concerning the cell. For what, indeed, are we to think of a chemical system in which so great an array of distinct catalysing agents is present or potentially present—a system, I would add, which, when disturbed by the entry of a foreign substance, regains its equilibrium through the agency of new-born catalysts adjusted to entirely new reactions? Here seems justification enough for the vitalistic view that events in the living cell are determined by final as well as by proximate causes, that its constitution has reference to the future as well as the past. But how can we conceive that any event called forth in any system by the entry of a simple molecule, an event related qualitatively to the structure of that molecule, can be of other than a chemical nature! The very complexity, therefore, which is apparent in the catalytic phenomena of the cell to my mind indicates that we must have here a case of what Henri Poincaré has called *la simplicité cachée*. Underlying the extreme complexity we may discover a simplicity which now escapes us. The subject should attract the contemplative chemist, and especially him who is interested and versed in the dynamical side of his subject. If he can arrive at any hypothesis sufficiently general to direct research he will have opened a new chapter of organic chemistry—almost will he have created a new chemistry.

DYNAMIC PHENOMENA IN WHICH THE CELL COMPLEXES PLAY A PROMINENT PART.

Paul Ehrlich, in his illuminating address to the International Congress of Medicine,[1] remarked that if in chemistry it be true that *Corpora non agunt nisi liquida*, then in chemiotherapy it is no less true that *Corpora non agunt nisi fixata*. Whatever precisely may be involved in the important principle of "fixation" as applied to drug actions, it remains, I think, true that the older adage applies to the dynamic *reactions* which occur in the living cell. But there are doubtless dynamic phenomena in which the cell complexes play a prominent part. The whole of our doctrine concerning the reaction of the body to the toxins of disease is based upon the fact that when the cell is invaded by complexes other than those normal to it, its own complexes become involved. I must not attempt to deal with these phenomena, but rather proceed to my closing remarks. I would like, however, just to express the hope that the chemist will recognise their theoretical importance. He will not, indeed, be surprised at the oligo-dynamic aspects of the phenomena, startling as they are. When physico-chemical factors enter into a phenomenon the influence of an infinitely small amount of material may always be expected. It is a fact, for instance, as Dr. W. H. Mills reminds me, that when a substance crystallises in more than one form it may be quite impossible to obtain the less stable forms of its crystals in any laboratory which has been "infected" with the more stable form, even though this infection has been produced by quite ordinary manipulations dealing with the latter. Here certainly is a case in which the influence of the infinitesimal is before us. But what I feel should arrest the interest of the chemist is the remarkable mingling of the general with the particular which phenomena like those of immunity display. In the relations which obtain between toxin and antitoxin, for example, we find that physico-chemical factors predominate, and yet they are associated to a high degree with the character of specificity. The colloid state of matter, as such, and the properties of surface determine many of the characteristics of such reactions, yet the chemical aspect is always to the front. Combinations are observed which do not seem to be chemical compounds, but rather associations by adsorption; yet the mutual relations between the interacting complexes are in the highest degree discriminative and specific. The chemical factor in adsorption phenomena has, of course, been recognised elsewhere, but in biology it is particularly striking. Theoretical chemistry must hasten to take account of it. The modern developments in the study of valency probably constitute a step in this direction.

CLOSING REMARKS.

It is clear to everyone that the physical chemist is playing, and will continue to play, a most important part in the investigation of biological phenomena We need, I think, have no doubt that in this country he will turn to our problems, for the kind of work he has to do seems to suit our national tastes and talents, and the biologist just now is much alive to the value of his results. But I rather feel that the organic chemist needs more wooing and gets less, though I am sure that his aid is equally necessary. In connexion with most biological problems, physical and organic chemists have clearly defined tasks. To take one instance. In muscle phenomena it is becoming every day clearer that the mechanico-motor properties of the tissue, its changes of tension, its contraction and relaxation, depend upon physico-chemical phenomena associated with its colloidal complexes and its intimate structure. Changes in hydrogen-ion concentration and in the concentration of electrolytes generally, by acting upon surfaces or by upsetting osmotic equilibria, seem to be the determining causes of muscular movement. Yet the energy of the muscle is continuously supplied by the progress of organic reactions, and for a full understanding of events we need to know every detail of their course Here, then, as everywhere else is the need for the organic chemist.

But I would urge upon any young chemist who thinks of occupying himself with biological problems the necessity for submitting for a year or two to a second discipline. If he merely migrate to a biological institute, prepared to determine the constitution of new products from the animal and study their reactions *in vitro*, he will be a very useful and acceptable person, but he will not become a biochemist. We want to learn how reactions run in the organism, and there is abundant evidence to show how little a mere knowledge of the constitution of substances and a consideration of laboratory possibilities can help on such knowledge The animal body usually does the unexpected

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[1] THE LANCET, August 16th, 1913.

But if the organic chemist will get into touch with the animal, it is sure that the possession of his special knowledge will serve him well Difficulties and peculiarities in connexion with technique may lead the professor of pure chemistry to call his work amateurish, and certainly his results, unlike those of the physical chemist, will not straightway lend themselves to mathematical treatment He may himself, too, meet from time to time the spectre of Vitalism, and be led quite unjustifiably to wonder whether all his work may not be wide of the mark But if he will first obtain for us a further supply of valuable qualitative facts concerning the reactions in the body, we may then say to him, as Tranio said to his master

The mathematics and the metaphysics
Fall to them as you find your stomach serves you

All of us who are engaged in applying chemistry and physics to the study of living phenomena are apt to be posed with questions as to our goal, although we have but just set out on our journey It seems to me that we should be content to believe that we shall ultimately be able at least to describe the living animal in the sense that the morphologist has described the dead, if such descriptions do not amount to final explanations, it is not our fault If in "life" there be some final residuum fated always to elude our methods, there is always the comforting truth to which Robert Louis Stevenson gave perhaps the finest expression when he wrote

To travel hopefully is better than to arrive
And the true success is labour

THE NECESSITY FOR INTERNATIONAL REFORMS IN THE SANITATION OF CREW SPACES ON MERCHANT VESSELS[1]

BY J HOWARD JONES, M D EDIN, D SC,
MEDICAL OFFICER OF HEALTH, PORT AND TOWN OF NEWPORT, MON

THE hygiene of dwellings has received great attention during recent years, and praiseworthy advances have been made in the direction of improving the sanitation of houses, but unfortunately the hygiene of "crew spaces" has to a great extent been neglected New vessels are still being built which contravene the most elementary principles of domestic hygiene, and as a vessel may sail during its life time under several flags, the question is essentially an international one The hygiene of crew spaces has been sadly neglected, both nationally and internationally, in spite of the fact that the conditions under which crews live are far worse than those which obtain in work shops and factories and dwellings ashore where they are subject to laws and by laws and regulations in every direction The programme of the Fourth International Congress includes the subjects of the hygiene of passenger ships, sailors' homes, and men of war, but the hygiene of crew spaces of the mercantile marine was not referred to, and I am therefore very pleased to accept the kind invitation of the President of the Congress to draw the attention of the Congress to this important question

In Great Britain and Ireland the Board of Trade have had the supervision of the hygiene of all new merchant ships, and that standard has been accepted, with minor reservations, by most continental countries, but of late the subject has received considerable attention on the part of the maritime nations of Europe, and those countries are demanding a higher standard of hygiene in some respects than obtains under the English Board of Trade The housing conditions in one country, however bad, will not necessarily affect the inhabitants of other countries, as each country is practically self contained, but when we come to consider marine hygiene we find that it concerns all nations which "go down to the sea in ships," for marine trade is international in character Not only do vessels visit foreign ports to a great extent, but the crews are largely cosmopolitan in character, and it is not an uncommon thing to see half a dozen European countries represented among the crew of a vessel

Every Government looks after the interests of its subjects when abroad, and in order to ensure this consuls are appointed in all foreign ports of importance No maritime country can therefore afford to ignore the hygiene of the vessels of other countries as long as their sailors serve upon the vessels of other nations

Owing to the keen competition which exists in the merchant service vessels are designed with the view of carrying as much cargo as possible, in consequence of which the accommodation provided for the crew is frequently most unsatisfactory, not only in the forecastles but also in the officers' quarters Shipowners generally entrust the design and construction of the crews' quarters to the ship builders or surveyors, and undoubtedly far better accommodation could be provided for the crews at a very small extra cost, and it is a source of satisfaction to sanitarians to find that there is a growing tendency and desire on the part of shipping companies to provide better housing for the men on board their vessels Reforms in this direction would, however, be much more rapid if the subject received international consideration It is evident from a letter which I received recently from a Norwegian Customs official, who takes a great interest in the subject, that endeavours are being made to hold an international congress on the subject

Although vessels are built under the supervision and according to the requirements of the Board of Trade, when they visit a port they come under the observation of the Port Sanitary Authority, and in England these authorities endeavour to remedy insanitary conditions which may exist on board as far as this is possible under the circumstances The Port medical officers of health are fully alive to the necessity for a thorough revision of the standard of hygiene of crew spaces In support of this statement I beg to quote from the annual reports of other medical officers of health

1 Dr D S Davies in his report to the Bristol Port Sanitary Authority for 1911, says —

The nature of the living accommodation provided for seamen and [illegible]

best and most comfortable conditions were found chiefly in foreign owned ships with a few exceptions [illegible]

2 In his annual report for 1911 to the Port of London Dr. Herbert Williams drew attention to the matter as follows —

It may [illegible] crowded [illegible] exists or [illegible] of common lodging houses occupied by day and night, 4[illegible]0 cubic feet, whereas seamen may only have 72 cubic feet per head The conditions under which seamen on vessels live are particularly favourable for the dissemination of pulmonary tuberculosis and it would seem that until the legislature takes some more practical interest in the welfare of seamen pulmonary tuberculosis will continue to be a cause of much [illegible] ut before that [illegible] ich improved [illegible] egulations of [illegible] a ventilator, [illegible] ped up from [illegible] Complaints are made of the degeneracy of seamen found on British ships They can, indeed do little else but degenerate under the present conditions Persons who travel by steamer and are enabled to sleep in state rooms [illegible] quarters below deck which are practically in constant use as a sleeping, living, and dining room, generally dark, dirty, damp, and encumbered with clothing. In some of the smaller vessels the men have even to provide and to keep their food in their quarters.

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[1] A paper read at the Fourth International Congress for the Hygiene and Salubrity of Dwellings held at Antwerp, August 31st to Sept 7th, 1913

3. In the course of his annual report, 1911, Dr. E. W. Hope, the medical officer of health at Liverpool, remarks under the heading, "Diseases Incident upon Sailors; Sanitation of Vessels":—

> The diseases to which sailors are peculiarly liable fall under four headings: (a) Those which are caused by the peculiar stresses of the [illegible] the vices to which sailors in foreign ports [illegible] lcoholism and venereal diseases; (c) tropical [illegible] beri-beri, &c.; (d) those associated with the peculiar environment of the sailor, such as damp forecastles contaminated water supplies, and the close association of the sick with the healthy in the confined quarters on shipboard.
>
> [illegible] of disease that the efforts of the Port [illegible] the sanitation of vessels are directed. [illegible] er three headings as arising from: [illegible] and tear; (c) lack of cleanliness and nuisance.
>
> A large number of the defects included under the third heading that are found on British ships arise from the crews having been paid off and the forecastles being unoccupied. This is specially applicable to the tramp class of vessel. In the case of ships of foreign nationality or carrying "native" crews the crew are at the time inhabiting quarters where filth or nuisance exists.

For many years I have personally drawn attention to the deplorably insanitary conditions which exist on board merchant vessels. Among the matters referred to in those reports which still demand attention are the following:—

> Regulations for ensuring a higher standard of hygiene on the part of both masters and other members of the crew.
>
> The inadequate attention frequently given in the designing of the crews' spaces on new vessels to the elementary principles of domestic hygiene; the accommodation provided on many new vessels being very unsatisfactory and antiquated.
>
> The desirability of the appointment of an Inter-Departmental Committee of the Board of Trade and Local Government Board for considering the whole question of the hygiene of the merchant service.

Ventilation (Annual Report 1912).—This is often very unsatisfactory. The minimum requirements are two ventilators. One deck ventilator and an opening over the door of the forecastle leading into the alleyway is the usual type provided. Unfortunately, in cold weather the only deck ventilator is frequently utilised for the stove pipe. The alleyways leading to the officers' and engineers' quarters are also frequently very badly ventilated. This affects the ventilation of the rooms leading from such alleyways.

Chain lockers.—The filth which is taken on board from docks, wharves, &c., on the anchor chain ferments and gives rise to effluvia, and precautions are necessary to prevent such effluvia contaminating the forecastles, through which these chain lockers usually pass from the forecastle deck above. When these chain lockers are made of wood, as they frequently are, the joints soon separate and allow of effluvia to enter the forecastles from these enclosed spaces.

Ship stores.—The space provided for ship stores is generally very scanty, consequently if there are two water-closets for the men, one of them is often converted into a paint locker, lamp room, or rope stores, &c.

Cubic space.—This could, with advantage and without perceptibly affecting the commercial value of the vessel, be materially increased. When we consider the nature and quality of the ventilation usually provided, 120 cubic feet per head cannot be considered satisfactory.

Floor space.—This is also very inadequate in many modern vessels, including those recently built, so much of the space being taken up with bunks, seats, tables, lockers, pipes, stoves, weekly stores, and the trunks of the crew. Under such conditions it is very difficult to keep forecastles clean and wholesome.

Lighting of crew spaces.—The value of light in domestic hygiene has been thoroughly established, and the Board of Trade Regulations state that every space appropriated to the use of the crew must be properly lighted. The standard upon which surveyors are to judge the adequacy of the lighting is the ability to read the print of an ordinary newspaper *in any part* of the space when the ship is new and the paint clean. Few vessels would pass such a standard under ordinary working conditions. Most vessels have the bunks fixed against the sides of the vessels, the upper row being placed 6 to 12 inches below the portholes, consequently the lighting of the lower parts of the forecastles is obstructed by these fittings, and in some parts is hardly sufficient to make darkness visible. A great portion of the floor space in particular is very dark. This naturally leads to neglect in respect to the cleansing of those spaces. This interference with the efficient lighting of the forecastles is not the only objection to the practice of placing the bunks against the ship's side; it also interferes with the use of the portholes as ventilators, as the occupiers of the upper bunks just under the portholes object to the wind and rain beating upon them when the portholes are open. The use of white paint or enamel greatly improves the lighting of crews' spaces; it also renders any dirt visible and draws attention to the necessity for more frequent washing of the woodwork, &c. Lime washing is compulsory in some Indian ports. Unfortunately, its cleansing properties are evanescent and more than counterbalanced by its perishable nature. It cannot be washed or cleaned, is rough, harbours dust, and soon peels off and falls on the bunks, food, &c.

Lavatory accommodation.—The standard of decency in this respect is very low. The type of water-closet so often provided on vessels, even on some of the newest, has long since been condemned by sanitary officials, whilst the lack of facilities for ablutions does not conduce to cleanliness of person. These rough trough-closets, as a rule, are not provided with valves, consequently in rough weather they are liable to get flooded by sea water, in which case the contents get washed on to the floor, or may foul the occupier.

Forecastles.—Continental shipowners in particular are realising the advantages of housing the crew under the "poop" aft instead of in the forecastle forward. In many of the second-hand vessels purchased by continental shipowners from British owners the crew have been transferred aft. The poop provides far more commodious, comfortable, convenient, and much lighter quarters than are available forward. The British Board of Trade have recently revised their instructions to their surveyors who supervise the building of new vessels, but most of the improvements take the form of suggestions, and are not compulsory.

Tuberculosis.—A great fight is being carried on throughout Europe against tuberculosis. One of the great forces in this fight is the provision of healthy houses. The living conditions obtaining on our merchant vessels, more especially the inadequate lighting, ventilation, and cleansing, place the crews at a great disadvantage when exposed to infection from companions suffering from consumption. The disease is certainly very prevalent among sailors and firemen, but correct statistics are unavailable, as many sailors die abroad at sea, and are therefore not included in British vital statistics. Thirty-nine out of 165 cases of sickness which occurred during the voyages or after arrival of vessels at a neighbouring port during 1912 were cases of phthisis. Those men, with the exception of those who died at sea, would have to be dealt with ashore; the conditions of living at sea is therefore a matter which vitally concerns us all, and every endeavour should be made to improve the hygiene of our marine services.

We must bear in mind that the conditions of living on board merchant vessels would be greatly improved by the exercise of stricter discipline and supervision on the part of the masters and officers. International regulations should be framed for ensuring satisfactory domestic sanitation on the part of masters and men. Public health regulations are enforced in connexion with all important trades ashore. This lack of supervision is common to all nationalities more or less, as will be seen from the following summary of the insanitary vessels which were discovered at Newport during the years 1898 to 1908:—

Country.	Average per cent. (insanitary).	Country.	Average per cent. (insanitary).
Denmark	10·5	France	18·5
Norway	11·11	Russia	19·5
Germany	11·27	Belgium	20·9
Sweden	11·4	Portugal	22·59
Austria	13·27	Spain	26·2
Great Britain	13·99	Greece	29·8
Holland	18·3	Italy	32·7

The trade unions which look after the interests of sailors and firemen can assist in this matter not only by educating their members to a higher standard of cleanliness, but also by promoting any reforms which will give masters the power to enforce any rules for better hygiene in the forecastles, which now frequently are rendered unfit for habitation by the action of one or more careless members of the crew.

The Congress has the advantage of meeting in one of the great ports of Europe, and a visit to the docks at Antwerp would satisfy every inquirer on this subject that the matter can only be dealt with satisfactorily by international action The question of uniformity of action in dealing with the dangers of invasion by cholera, yellow fever, and plague has been the subject of an International Conference which led to a common basis of action, and those regulations are now undergoing international revision This fact proves that such subjects can be dealt with successfully, and the case for international regulations is much stronger when we consider marine hygiene, as it deals with the everyday life of those who live at sea under very depressing and unsatisfactory conditions which tend to lower the standard of work and to drive self respecting individuals to seek employment ashore Such a Conference should not be confined to Board of Trade officials, but should include all interests concerned, in order that the regulations might be satisfactory from the point of view of owners, masters, crew, the Board of Trade, and public health officials

I sincerely trust, therefore, that this Congress will decide to further the appointment of a small international conference on the subject, and that the Permanent International Committee will, after the Congress, keep it under consideration until definite action is taken in the matter

Newport, Mon

THE DETECTION OF SMALL AMOUNTS OF GLUCOSE IN URINE

By SYDNEY W COLE, M A CANTAB ,

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IT has been repeatedly demonstrated that by the application of Fehling s test alone one cannot with any certainty demonstrate the existence of a small amount of glucose in a specimen of urine I have elsewhere enlarged on the fallacies of the test [1] Briefly stated, they are 1 Urates reduce Fehling's solution 2 Creatinine reduces Fehling's solution and also forms a soluble compound with cuprous oxide,[2] thus preventing the detection of a small amount of sugar 3 Sodium hydroxide, if present in excess, destroys a small amount of glucose [3] 4 Conjugated glycuronates are hydrolysed to reducing substances by sodium hydroxide 5 The mixed solution is unstable, and if kept suffers auto reduction on boiling 6 The solution is reduced by lactose, a normal constituent of the urine of women during the period of lactation 7 The solution is reduced by pentoses, which, however, are rarely found in urine

In the case of a large number of samples of urine as much as 0 5 per cent of glucose can be added without producing, when tried with Fehling s test, anything more than the greenish cloud that is seen with specimens that can be shown, by more suitable methods, to contain no more than the average normal amount of glucose It cannot be too strongly urged that for the detection of small degrees of glycosuria Fehling's method is extremely unreliable and the use of the reagent is almost certain to lead to erroneous conclusions

In choosing a method to supersede Fehling's one must not lose sight of the fact that normal urine contains a small amount of glucose The percentage calculated by different methods varies between 0 03 and 0 08 I certainly think that the latter is too high for the samples I have tried, but the exact figure is not material It is of the greatest importance to be able to determine any excess of glucose however small, above the normal Macleod [4] emphasises this point "If there really is an excess of dextrose, however small, it indicates that something is amiss with the utilisation of carbohydrates in the organism, it is a danger signal which if heeded and the proper treatment applied, may unquestionably *enable us to stave off* the incidence of what might afterwards prove a deadly diabetes "

From an extensive series of experiments that I hav made I am convinced that of the great number of tests that have so far been devised Benedict's [5] is the most satisfactory one to use in the great majority of cases The substitution of sodium hydroxide by sodium carbonate overcomes the first four of the objections to Fehling's solution, and the use of sodium citrate instead of Rochelle salt renders the mixed solution perfectly stable In fact, the only serious objection to it is that it gives a marked reaction with lactose

As has been pointed out elsewhere,[6] a greyish precipitate of urates and phosphates may appear and lead to a slight amount of indecision

Nylander's test when correctly applied [7] *is also valuable in* a negative sense—that is to say, a negative reaction indicates that the condition of glycosuria does not exist But a positive test is yielded by other substances, and so cannot be relied upon as an indication of the condition of glycosuria

The phenyl-hydrazine test for demonstrating the presence of glucose is very reliable when correctly performed But it is almost too delicate A large number of normal urines yield undoubted crystals of the glucosazone In this connexion it may be pointed out that the most sensitive method of performing the test in my experience is as follows

To 10 c c of the protein free urine in a test tube add six drops of glacial acetic acid e
cover a shilling and
to dissolve and filte
boiling water bath fo
tube to cool in the bath for an hour

I find that the addition of the acetic acid markedly increases the ease with which crystals can be obtained *Binet* [8] uses acetic acid *after the use of* lead acetate, but I find that the previous precipitation of the urine by lead is of very doubtful advantage

During the course of another investigation I had occasion to use blood charcoal for the purpose of decolourising urine I noted the fact that urates and creatinine are adsorbed with great readiness In many of my experiments I obtained a filtrate containing only about 1 per cent of the urates and 3 per cent of the creatinine of the urine, and in some I apparently removed the whole of these substances that so markedly interfere with Fehling's test

The adsorption of glucose from pure solution by blood charcoal has been studied by Rona and Michaelis [9] They find that the addition of 10 per cent of acetic acid or of 15 per cent of acetone prevents the adsorption of glucose by charcoal Andersen [10] confirms this for glucose in urine

I have investigated the adsorption of glucose and lactose from water and urine under a variety of conditions Some of the results are given below The charcoal used was Merck's pure blood charcoal The adsorptions were conducted at room temperature for 1½ hours in each case The sugar was estimated by a sensitive polarimeter using both the sodium yellow and the mercury green [11]

Glucose

Per cent	Per cent charcoal	Per cent adsorbed from water	Per cent adsorbed from urine	Per cent adsorbed from 10 % acetic acid	Per cent adsorbed from urine + 10 % acetic acid.
1 78	6 35	55 5	50 2	1 1	1 7
0·91	4 5	52 5	27 9	0	0 8
0 49	5 0	63 8	31 2	—	—
0 49	5 0	65 0	44·9	—	—
0 35	4 6	65 0	42 2	0	0
			Lactose		
1·80	6 35	83 9	77·5	17·9	6·6
0 91	4 5	97 5	76 5	5 3	4 8
0 51	5 0	100 0	86 5	—	—
0 51	5 0	100·0	92 5	—	—

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[1] Practical Physiological Chemistry, S W Cole, third edition, 1913, p 161

[2] Hugh MacLean Biochemical Journal vol i, 1906, p 111

[3] S R Benedict Journal of Biological Chemistry, vol iii, 1907, p 101

[4] J J R Macleod: Diabetes: its Pathological Physiology, 1913, p 16

[5] Stanley R Benedict Journal of Biological Chemistry vol v, 1909 p 485

[6] Macleod, loc cit p 20

[7] Cole loc cit p 161

[8] 1 el, 1909, p 49

[11] use making the observations

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Heliotherapy in Surgical Tuberculosis.

Dr. Rollier, of Leysin (Canton de Vaud), has recently published in a volume of the Annals of the Swiss Society of Balneology full details of his sun-bath treatment of surgical tuberculosis. Although Herodotus (484 B.C.) and Antyllus (300 A.D.) praised the good effects of sun-baths, this method of treatment remained until recent times in the hands of quacks. Perhaps Rickli and Finsen have done most to attract the attention of the profession to the good effects of heliotherapy. Bonnet, in 1840, Ollier and Poncet, of Lyons, first wrote on the value of sun-baths in tuberculosis of the joints. A pupil of the latter, Dr. Millon, wrote an inaugural dissertation in 1899 entitled "L'Héliothérapie comme Traitement des Tuberculoses Articulaires." Many others have followed in his steps, amongst whom may be mentioned the names of Vidal (Hyères), Bourcart, Revilet (Cannes), Imida, Chiais, Monteins, Malgat (Nice), and Bernhard (Samaden). Dr. Rollier has made use of this method in Leysin, with its exceptional amount of sunshine, during the last 10 years, and reports on 650 cases thus treated in his three clinics situated at altitudes of 1250, 1350, and 1500 metres, and now accommodating 200 adults and 150 children. Of course, the stimulating Alpine air must also be taken into consideration. Dr. Rollier is of opinion that all closed forms of surgical tuberculosis heal if treated long enough, and publishes photographs of patients. He considers active surgical interference to double the danger and employs aspiration of pus only in certain cases. Only 7 out of 650 cases received operative interference. All the cases reported as healed were carefully controlled by skiagrams; cases clinically healed or quiescent are registered only as improved. The 650 cases refer to 355 adults and 295 children. Out of 450 "closed" cases 393 were cured, 41 improved, and 11 remained stationary. Of 200 "open" cases 137 were cured, 29 improved, and 14 were stationary. As regards the method, Dr. Rollier reports as follows. The first few days are days of complete rest and are devoted to the process of acclimatisation. Then, beginning at the feet, and at first only three times a day for five minutes, the body is successively exposed to the influence of the sun. Thus eczema or inflammation is always avoided. The rapidity of pigmentation generally coincides with a more rapid cure. The following table refers to the most interesting cases:—

—		Cured.	Improved.	Stationary.	Died.	Total number of cases.
Spondylitis	Without abscess	45	7	—	1	53
	With "	24	1	1	2	28
Coxitis ...	Without "	36	3	—	—	39
	With "	15	2	1	—	18
	Secondary infection ...	8	6	3	7	24
Gonitis ...	Without abscess	46	2	2	—	50
	With "	7	2	—	—	9
	Secondary infection ...	6	1	1	—	8
Osteitis ...	Closed	21	4	—	—	25
	Secondary infection ...	32	2	—	1	35
Tuberculous peritonitis		32	5	4	4	45
Tuberculosis of kidneys		11	7	2	—	20
"	after nephrectomy ...	6	2	2	—	10
Adenitis tracheo-bronchialis	Without abscess	36	3	—	1	40
	With "	16	—	—	—	16
	With secondary infection...	29	3	—	—	32
Scrofuloderma and lupus		10	3	—	—	13

The spondylitis cases were treated with immobilisation by means of linen bands easily removed. Cold abscesses often became absorbed rapidly; in some cases aspiration was performed. The convalescent patients wore a celluloid corsage easy to remove. Coxitis and gonitis are treated by permanent extension; the functional results, even in cases of 5–10 years' standing, were remarkable. Methodical active contraction of the quadriceps muscles prevented atrophy. The return of movement in the joints came on spontaneously without any aid by active or passive movements. Glandular swellings were absorbed rapidly; fistulas dried up; sequestration of bone took place spontaneously in all but three cases, in which surgical interference was resorted to. Dr. Franzoni has reported at length on the process of sequestration. Tuberculous peritonitis, especially the caseous glandular forms, healed well. Neither puncture nor laparotomy was resorted to. Ileocæcal fistulas also closed. One very severe case which had produced almost complete stenosis of the intestinal canal, and in which Professor Roux declined to operate, benefited so greatly in the course of a year's treatment that Professor Roux could detect nothing pathological. The duration of the treatment in general varied from half a year to two years and more.

Zurich, Sept. 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Destruction of Flies.

THE Conseil d'Hygiène et de Salubrité of the Department of the Seine having instructed Dr. Vaillard, a medical [illegible] the army and president of the Army [illegible] to make a special study of the part played by flies in the dissemination of infectious diseases, Dr. Vaillard has formulated some practical measures for their destruction. A mixture of 15 per cent. of commercial formol, 25 per cent. of milk, and 60 per cent. of water, with a little sugar, is to be disposed about the rooms in wide shallow dishes. Flies, attracted by the milk, readily drink this and die almost immediately. The mixture can be used for several days. Cresol fumigations also may be used. When evaporated by heat over an alcohol lamp cresol gives off abundant fumes, which are very toxic for flies and mosquitoes. Dr. Vaillard recommends the protection of dwellings against the invasion of flies as well as the destruction of those that gain access. These are excellent, but only palliative, measures. The essential thing consists in preventing their propagation and destroying the foci of incubation. To this end garbage accumulations should be suppressed as far as possible, and larvicides should be used. Dunghills and stables should be sprinkled with freshly prepared solution of slaked lime. Quicklime should be used in privies, as is done in America. The larvæ may be destroyed and the egg-laying females dispersed by treating privies with a mixture, briskly shaken, of equal parts of natural schist oil (*huile de schiste brute*) and water.

The Treatment of Adder Bites.

Dr. Guyot recommends this treatment for adder bites. On the occurrence of the bite the first thing is to prevent absorption, to localise the poison, and to combat its action by suction; but a similar practice, which is too much used, has its dangers. To retard absorption the application of a constricting band on the proximal side of the bite is efficacious. To destroy the poison the application to the wound of antiseptic solutions was recommended by Lacerda, who used for this purpose 1 per cent. solutions of potassium permanganate. But, according to Dr. Guyot, this drug also reduces absorption by a purely physical agglutinating property, rendering the poison insoluble. Were its action purely antiseptic, due merely to its oxidising power, oxygenated water would be preferable, or the peroxides or perborates; a solution of colloidal silver also would have the same result. Among other chemical preparations recommended a solution of chromic acid deserves attention. Chromic acid is both a caustic and an oxidiser. According to Cerbelaud, a 1 per cent. solution would be analogous to the formula of the outfit (*trousse*) of Michel Legros, which is much used for viper bites. The technique consists in injecting a cubic centimetre of the solution, divided into three or four injections, one into the bite, a second at the edge of the swelling, the third and fourth peripherally. These injections are very painful, and should be made as quickly as possible after the bite—the maximum time being four hours after But the only really efficacious and rational method is the physiological one—Calmette's serum, which is obtained by progressive immunisation of horses with increasing doses of snake poison Ten cubic centimetres of this serum are injected hypodermically not later than four hours after the bite Calmette's serum being very unstable, efforts have been made to desiccate it The result is known as Fraser's serum, and it is dissolved when wanted for use in boiled distilled water The use of specific measures must not, however, do away with general measures for the elimination of the poison, such as purgatives, emetics, and diaphoretics, and the use of stimulants, such as ether, caffeine, and camphorated oil, to overcome the depression

A Novel Enterprise of Quacks

For some time the peasant proprietors in France have been receiving a circular entitled "Cadeau Musical" This circular announces that to obtain a free gift of a pretty piece of music for the piano and the voice the names and addresses of 20 persons having any of the following affections should be sent to a certain person in Paris whose address is appended A list of the principal diseases, including asthma, diabetes, lameness, and eczema follows Two pieces are offered for 40 addresses, three for 60, &c, and secrecy is guaranteed as to the furnisher of the addresses The use that will be made by quacks of addresses thus furnished may be easily guessed

Sept 16th

BUDAPEST

(FROM OUR OWN CORRESPONDENT)

National Society for Preventing the Spread of Venereal Diseases

THE inaugural meeting of the National Society for the Prevention of the Spread of Venereal Diseases was held recently under the presidency of Professor Julius Donath In his introductory address the President assured his hearers that the society would not deal with the treatment of cases but its activity would be restricted to prophylactic work He said that the cooperation of the medical and communal authorities was absolutely necessary for success because the damage to public health caused by venereal diseases in Hungary was immense Dr Weiss Emil editor of the *Egeszsegugyi Lapok (Sanitary Officer's Journal)* read a paper entitled "How to Prevent the Infection of School Children with Venereal Diseases" He pointed out that in Hungary the instruction of children in sexual matters was quite unknown—at least as far as parents were concerned—and the discussion of the subject with juveniles after they have left school was rather late On the other hand, the enlightenment of boys under 14 or 15 years of age was too early He did not support the idea of discussing sexual questions in school but he recommended as an auxiliary solution of the problem that at least once in a year parents should be invited to attend a meeting at which they would be advised how to act Young persons proceeding with their education in Hungary ought to be under supervision not only as regards their morality but also as regards their health Where there were no school medical officers the National Society for Preventing the Spread of Venereal Diseases would bear the expense of engaging medical experts who would carry out its recommendations The direct enlightenment would be deferred until after the maturity examinations Dr Biró Ede, of the army medical staff, spoke on the present system of teaching soldiers how to avoid venereal diseases He said that soldiers leaving the service and returning home were very apt to communicate venereal diseases and he asked the President to appoint a committee to consider how this could be prevented The society has resolved to establish venereal dispensaries in some of the largest cities of the country, the first one will be opened in October

The Manufacture of Soda-water

The Minister of Public Hygiene, having regard to the threatening cholera epidemic, has issued an order to all medical officers of the country to visit the soda water factories in their districts and insist on the utmost attention being paid to the use of pure water and the generation of carbonic acid gas from pure materials Soda water must not be supplied to the public in bottles larger than half a litre (rather less than an imperial pint) Syphons must be made of glass, porcelain nickel, or aluminium In the whole country at least 300 soda water factories have been closed on account of their water supply not being up to the standard

Proposed Restrictions on the Sale of Rifles

In view of the very numerous cases in which persons have taken, or attempted to take, their lives by shooting themselves with rifles, these weapons being sold here without any restriction, it is not surprising that a movement is in progress which, it may be hoped, will result in a Bill being brought before Parliament to check their indiscriminate sale The leader of the movement, a Member of Parliament, said that the community might claim that as the law punished with the utmost rigour even the smallest transgression of the hygienic regulations it equally ought not to allow juveniles and excited persons to buy rifles, which were used with fatal effect both in public places and in private houses

The Relation of Athletic Exercises to Dilatation of the Heart

Dr Bender has examined the hearts of 250 athletes and 300 students, the latter after they had taken one hour's continuous exercise His examination was restricted chiefly to defining the outlines of the heart by the X rays and otherwise He found that of those persons who had been taking part in athletic sports and active bodily exercises for a year or two the majority manifested some dilatation of the heart, which, however, did not interfere with their health at all On account of this observation he was inclined to regard such dilatation as a semi physiological condition with those who are habituated to athletic sports and exercises His conclusion is that such exercises, even when decidedly energetic, are not injurious because the vascular system and the cardiac action gradually adapt themselves to the slight dilatation Neither does arterio sclerosis occur in a greater percentage in athletes than among other persons Of course, all these remarks relate to normal and healthy subjects and not to persons suffering from illness or debility Neither can they apply to people who are addicted to any excesses or to over indulgence in alcohol or tobacco On the ground of his investigations Dr Bender would discard the term sport heart as used on the continent for cardiac dilatation in athletes

Sept 13th

PITCH CANCER IN WALES—For several years the occurrence among some of the men employed in the making of briquettes or patent fuel of an eczematous ulceration, which has been termed pitch cancer has been causing some concern among the manufacturers engaged in the industry as well as in the medical department of the Home Office Mr A H Lush, a commissioner appointed by the Home Secretary to inquire into the scope of possible regulations, made several important suggestions, to which allusion has been already made in THE LANCET Among these was the installation of baths at some of the factories in Cardiff and Swansea in the use of which volunteers among the men should be sought in order that a trial might be made of the effect of a daily bath after work This suggestion was carried out on a limited scale and Mr Lush has now reported on the result [illegible] t in Cardiff there [illegible] taking the baths [illegible] e up their employment if compelled to do so After making the trial this feeling is still predominant most of the men who used the baths declaring that they suffered great agony every day, notwithstanding which however, they persevered with the baths for many months without any apparent necessity or inducement In Swansea, on the other hand the men were favourably impressed [illegible] use of the baths, though [illegible] to bathe Under the cir [illegible] he draft regulations in which bathing was made compulsory should be withdrawn He is evidently influenced in the matter by the prospect which he refers to of some method being devised for eliminating from the tar used in the manufacture of the briquettes the mischievous agent which is the cause of the warts and ulcerations to which the workers are subject It may therefore be necessary to regulate the manufacture of the tar and not of the briquettes would be against their own interests for the newspapers to report the cases where death was due to the administration of an anæsthetic by an unqualified man. Parliament, he added, took no action because Members of Parliament only attended to the matters which the newspapers brought before the people.

The Ductless Glands.

To the Section of Physiology the committee, consisting of Sir E. A. Schäfer (chairman), Professor Swale Vincent (secretary), Professor A. B. Macallum, Dr. L. E. Shore, and Mrs. W. H. Thompson, presented its report, drawn up by the secretary, stating that a study of the distribution and the detailed histology of the accessory cortical adrenal bodies had been commenced by the secretary, but as this involved a large amount of serial section cutting the work had not progressed far, and there were no new facts to report. An investigation into the histological changes in the thyroids and parathyroids and some other ductless glands under varying physiological and pathological conditions (different diets, starvation, poisons, &c.) had been undertaken. Mr. Cameron had been testing Hunter's method of iodine estimation in organic substances. It was satisfactory for moderate amounts, such as are found in the sheep's thyroid. It was not satisfactory for very slight traces. An initial attempt had been made to correlate other tissues with the thyroid as regarded iodine content, but no definite results had yet been obtained. The presence of iodine in the thyroid of frogs, fishes, and reptiles was under investigation, with the assistance of Mrs. Thompson. This chemical work was preliminary to a thorough investigation (by means of metabolism experiments) of the rôle of iodine in the animal economy. The committee asked to be reappointed with a grant of £40.

Colour Vision and Colour Blindness.

To the same section the committee, consisting of Professor E. H. Starling (chairman), Dr. F. W. Edridge-Green (secretary), Professor Leonard Hill, Professor A. W. Porter, and Professor A. D. Waller, presented its report, drawn up by the secretary, stating that the inadequacy of the wool test (even with additional colours) for colour blindness was now established. On April 1st the Board of Trade had adopted a lantern test for colour blindness in addition to the wool test. The total number examined by the Board in colour vision from April 1st to May 31st was 1689, and of these 105, or 6·22 per cent., failed. Of the 105 failures, 55 failed in both the wool test and lantern test, and 50 in the lantern only. None failed in the wool test only. The four chief colour names (red, yellow, green, and blue) must be used in any test for colour blindness, and if a daylight test were required, the bead test of Edridge-Green was preferable. The chief difficulty from a practical point of view was the line at which rejection should take place, as there was every grade of transition between total colour blindness and the normal colour sense. If a large number of persons were examined with the Edridge-Green lantern about 25 per cent. showed defects of colour perception. In the majority of cases these defects were slight, therefore it was necessary to know the nearest distance at which a coloured light must be recognised—i.e., the exact degree of colour weakness which was permissible—and that the line of rejection should be fixed accordingly. A man having even a slight defect of colour perception was not quite so efficient as one not possessing this defect; this particularly applied to the shortening of the red end of the spectrum, which prevented the recognition of red light at the normal distance, particularly when obscured by fog. The committee recommended that it be reappointed.

Egyptian Incubators.

In the Section of Agriculture an interesting paper was that of Mr. W. H. CADMAN on the Artificial Incubating Establishments of the Egyptians. The art of hatching fowls' eggs by heat originated in Egypt, probably about 3000 B.C., and had continued ever since, being handed down as a mystery in families. He described the incubator buildings, of which in 1911 there were 512, calculating that some 185 million eggs were put into them annually, and 120 millions of chickens taken out—a much superior result to that obtained by our modern incubators. The fuel used was dried cakes of chopped straw mixed with the dung of cows, buffaloes, camels, and other domestic animals, which burned very slowly and evenly without going out. He predicted that the adoption of the Egyptian incubator would prove highly remunerative. *(To be continued.)*

THE NATIONAL INSURANCE ACT.

THE APPOINTMENT OF MEDICAL OFFICERS (MEN AND WOMEN) UNDER THE ACT.

AN advertisement has appeared recently in our columns inviting applications to the National Health Insurance Commission (England) from medical men and women desiring to serve as medical officers under the Act at salaries ranging from £500 to £800 per annum, the appointments carrying pensions. The particulars of these appointments have now been made public by the Commissioners in a document which does not purport to be an exhaustive statement of the duties and conditions of service of the officers to be appointed. The officers will be subject to all the rules applying to the Civil Service generally, and the object of the memorandum which follows is merely to enable the candidate to form an idea of the main conditions attaching to the appointments.

1. *General.*

There are at the present time vacancies for four medical officers, of which three will be filled by men and one by a woman. Applications must be made on the prescribed form, and no application will be considered unless received on that form by Oct. 13th, 1913. The form can be [illegible]

less than ten years' standing who have had experience of general practice; in the case of women (who must be unmarried or widows) seven years' standing will be accepted. Other things being equal, preference will be given to those of not more than 50 years of age. Candidates who appear from their applications to be the most suitable will be required to present themselves for interview, and the successful candida [illegible] required to undergo a strict examin[illegible] welling or other expenses can be allow [illegible] such interview or examination. T [illegible] quired to take up their duties at the earliest possible date.

2. *Salary.*

The salary will be £500 per annum; after three years £600; after five more years £700; and after another five years £800 per annum. The increments of salary above mentioned will in all cases be subject to the work and conduct of the officer concerned being regarded as satisfactory. Salaries will be paid quarterly, but an advance of not more than 8 per cent. of the annual salary will be made in each of the first two months of the quarter.

3. *Duties and Conditions of Service.*

Medical officers will be required to devote their whole time to the public service. They will be required to make inquiries in connexion with the administration of the health provisions of the National Insurance Acts, to advise the Com[illegible] medical knowledge, to prepare statisti[illegible] to carry out such other [illegible] them by the Commission [illegible] at such headquarters as [illegible] Commission, and it m[illegible] one of the conditions of appointment that each officer [illegible] be prepared to work where directed to do so from time to time by the Commission. No removal expenses can be allowed to an officer on first taking up his appointment, but in the case of subsequent transfers (if any) removal expenses will be allowed in accordance with the scale fixed by departmental regulations. When required to travel on the public service officers will be allowed first-class railway fares and other approved travelling expenses. When absent from headquarters they will be paid subsistence allowance, in accordance with Departmental Regulations, on the following scale:—*In case of absence not exceeding* 14 nights in any one place, £1 for each night of absence. In case of absence exceeding 14 nights *in any* one place, 13s. 4*d*. for each night of absence. In case of absence exceeding 10 hours in any one day which is not covered by a night allowance, 6*s*. 8*d*. for that day. Subject to the state of public business permitting, officers will be allowed holidays of 36 week-days during each of their first ten years of service, and 48 week-days thereafter, exclusive of the ordinary public holidays. The appointments will be subject to the usual probation of two years applying generally in the Civil Service.

4. *Retirement.*

[illegible] ment will be qualified for [illegible] ance with the Superannuation Acts, 1834–1909, the main provisions of which may be summarised as follows:—(*a*) *Pensions on retirement.*—Officers who have reached the retiring age or are invalided at an earlier age may, if they have completed 10 years' service, be granted a superannuation allowance on retirement equivalent to 1/80th in the case of men and 1/60th in the case of women of their annual salary on retirement, for each year of approved service. If they have not served for 10 years they can receive no pension, but may be granted a gratuity not exceeding one month's pay for each year of approved service. (*b*) *Additional lump-sum allowance on retirement (applicable to men only).*—In addition to any pension or gratuity paid as in (*a*) above, male officers who retire after having served for not less than two years may be granted a lump sum allowance equal to 1/30th of the annual salary on retirement, multiplied by the number of completed years of approved service. (*c*) *Gratuity in case of death of male officers.*—In the case of the death of a male officer, whilst still employed in the service, *after he has served* for five years or upwards, a gratuity equal to his annual salary at death may be granted to his legal personal representatives. (*d*) *Gratuity in case of marriage*

[illegible]

In (d) above

The particulars have been printed in full in order to show practitioners that the scope of service is purely administrative, and that there is no suggestion that the selected medical officers should be used to reinforce panels where necessary.

MEDICAL BENEFIT FOR MIGRATING MEMBERS

Special arrangements have now been made for the provision of medical benefit in the case of insured persons who constantly move from place to place over a wide area in the course of their employment Such persons if they prove that the circumstances of their employment are such as to render these special arrangements applicable will be supplied with a special yellow voucher which will be available in the area of any Insurance Committee in Great Britain A form for use in applying for permission to be admitted to these special arrangements may be obtained from any Insurance Committee or from the secretary, National Health Insurance Commission (England), Buckingham Gate, London, S W.

DRUNKENNESS AND MEDICAL BENEFIT UNDER THE ACT.

The Halifax National Health Insurance Committee appears to have had propounded to it by the chief constable of Halifax the question whether an insured person arrested upon a charge involving that of drunkenness would be entitled to call in "his panel doctor" without payment to examine him with regard to his alleged condition. The reply directed to be sent by the clerk to the Committee was in the affirmative, but subject to the following conditions—(1) that the medical man should be sent for at the request of the insured person or of some responsible relative; (2) that the attendance asked for should not involve a journey outside the insurance area in which the insured person resides; (3) that every reasonable precaution should be taken to notify the medical man as early as possible; (4) that such service by the panel doctor should not include the giving of his opinion to any but the insured person or his relative, nor the giving of a certificate stating whether the insured person was drunk or not, nor the attendance at court of the medical man without fee The question [illegible] to be made by the Insurance Commissioners providing for arrangements "such as to secure that insured persons shall receive adequate medical attendance and treatment from the medical practitioners with whom arrangements are made," and the phrase "medical attendance and treatment" appears to be intended in the Act to cover the "medical benefit" to which the insured person is entitled Admittedly persons arrested for offences involving the charge of drunkenness include some in whose cases genuine illness has been mistaken by the police for the effects of alcoholic indulgence, and no one denies that a medical opinion on such an occasion is a safeguard for the obtaining of which every reasonable facility should be afforded Even, however, in such a case we submit that, if the right to summon the "panel doctor" is to be given, a special fee should be provided for what is likely to be an exceptional occasion, and the matter should not [illegible] ordinary routine of panel work [illegible] n who has created a dist[illegible] notice of the police, is a [illegible] g been guilty of the offence, whatever it may be, while under the influence of drink, and without claiming to be ill he denies the drunkenness, alleging that though possibly excited he was not drunk, or giving some other excuse or reason for his conduct. As a rule, in circumstances prevailing before the Insurance Act, a person charged who insisted upon a medical man being summoned belonged to the class more or less accustomed to pay for medical attendance; and he might be desi[illegible] sible, a convivial even[illegible] a police court, or of min[illegible] ance Even though all [illegible] which the Halifax Insurance Committee would impose, it seems to us that the effect of recognising attendance at a police station to examine an insured person charged with drunkenness as a part of the "medical attendance and treatment" to be supplied under the Insurance Act would be to impose an intolerable burden upon many of the medical men upon panels, and one which the Act did not intend should be imposed. As has been suggested, persons able to pay and anxious to contest the question of intoxication have hitherto done so upon a limited number of occasions There would, however, be no limit to such occasions if every "drunk and disorderly" knew that he was entitled to send for his "panel doctor" (which he would always be ready to do, if only to give the police more trouble), and to take his chance of being able to persuade that gentleman that the police had held an exaggerated view of the responsibility of alcohol for his situation He might not, indeed, be able to demand a certificate or evidence to be given in his defence without paying a fee, but the knowledge of this, if it could be conveyed to him, would not prevent him from insisting on his "rights" If the man was drunk the medical practitioner would have been called out for nothing, and this would happen in the majority of cases If the man was sober he would certainly feel it a hardship that his insurance should go half way in providing him with a witness and then stop; but to provide witnesses upon such occasions certainly is not one of the duties imposed upon Insurance Committees by the Act. There the Halifax Insurance Committee would appear to be upon safe ground.

Correspondence.

"Audi alteram partem."

DANGERS OF ARTIFICIAL PNEUMOTHORAX

To the Editor of THE LANCET

SIR,—May I, as one who has learnt much from demonstrations by Dr Claude Lillingston of this, relatively, altogether exceptionally effective special treatment of consumption, and who appreciates his close acquaintance with the literature (especially the Scandinavian part of it—a stumbling block to one of us), make a few remarks on his paper in THE LANCET of Sept 13th The inclusion of aspiration pneumonia seems to show a purview embracing more of the dangers involved than those exclusively concerned with sudden death Perhaps for completeness' sake acute empyema might have been added, since Elving[1] says that in several cavity cases attempts to break down adhesions by means of artificial pneumothorax have resulted in rupture of the cavity [illegible] Very likely this would b[illegible] ive pressure (20 cm H_2O) [illegible] was obtainable, at any rate to begin with Certainly, although treating (among others) a case of just this nature weekly for the last *six months, I have seen no casualty at all*; and I agree that, generally speaking, dangers are easily avoidable by attention to a proper technique. In fact, the impression present with me is that all *special* treatments of consumption may be ranged in three classes. The first comprises the "remedies" that have been *coming and going* every few months since time immemorial—*radio-menthol* iodine, Kuhn's mask, succinimide of mercury, inhalations, intravenous injection of antiseptics, maggots, hypophosphites, snails, and so on; the second is intensive tuberculinisation, at any rate a heuristic thing, and the third, lung collapse It should be added that in nine years' special experience I have never been similarly enthusiastic before.

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[1] Ergebnisse der inneren Medizin und Kinderheilkunde, Band x, S [illegible]27.

of road traffic, and especially of motors. There was no doubt, he said, that pathogenic spores and bacilli which were resistant to drying might be carried about by dust, and the ensuing danger seemed to be enhanced if associated with it were chemically corrosive or mechanically wounding elements. He referred to the special risk of contracting tetanus from the wafting about of horse manure on the roads, and suggested that narrow and ill-made roads should be gradually abolished and that houses should be built at a short distance from the edge of the roads. One of the most instructive discussions at the conference was that upon milk-supplies, which was opened by Dr. E. R. Woodhouse, of Llandudno, who maintained that the cleanliness of the surgical operating theatre was the ideal cleanliness to be aimed at in the dairy and throughout the career of milk from the cow to the consumer. A strict Milk Bill was wanted altering the method of inspection. Dairymen and vendors should be licensed, and competent inspectors should be appointed to inspect the cows, byres, premises, utensils, and all those who work in connexion with the milk trade. Milk-churns should be so constructed to prevent anything gaining access to the milk during its transit or distribution. Dr. Woodhouse stated that the Birmingham convalescent homes at Llandudno were supplied with milk from their own herds of cows. Each of the cows was tested for tuberculosis, and wore a metal disc on its ear as a certificate of freedom from the disease. In the course of discussion the difficulty of dealing effectually with typhoid carriers was referred to, and it was suggested that no person who had had an attack of the disease should be employed in the preparation of food.

DONATIONS AND BEQUESTS.—Mrs. Isabella Riddle Glover, who has bequeathed to the University of Edinburgh the sum of £4000 for the creation of two annual scholarships, to be called "The Principal Caird Scholarships," in either classics or philosophy, has also left by will £1000 to the Western Infirmary, Glasgow.—The Leicester Infirmary will receive under the will of the late Mr. Walter B. Clark £500.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the session was held on Sept. 4th at the Dispensary, Brighton, Dr. Walter Broadbent, the President, being in the chair. After welcoming Dr. Broadbent to the Presidential chair Dr. H. H. Taylor showed a case of Arterio sclerosis of the Retinal Vessels. He referred to the marked "white-star" appearance in the left eye, with compression of veins by the hardened arteries and a large hæmorrhage in the right eye, and emphasised the local nature of this condition, attended with no general high blood pressure and no kidney disease, being due probably to selective action of some toxin circulating in the blood. Consequently the prognosis in these cases was much better than would have been admitted some years ago, when the condition would have been attributed undoubtedly as secondary to renal disease.—Dr. C. F. Bailey showed an interesting series of Skiagrams illustrating the "holding up" of a bismuth meal in a patient who had suffered from abdominal pain for years and been operated on eight years ago with no permanent benefit. The photographs showed a shadow pool in the lower part of the stomach and a large shadow in the right flank in the transverse colon 27 hours after meal and absence of any bismuth in the rectum or descending colon as long as 51 hours after.—The President discussed the case and suggested that adhesions, possibly the result of original gastric ulcer, produced a bend or kink in the region of the splenic flexure.—The President read an address on Disorders of the Stomach and their Remote Effects. He said that there were two conditions of the stomach which gave rise to the greatest number of remote effects. The first was when the percussion note over the stomach was abnormally tympanitic and the resonance as high as the fifth rib, extending out towards the axillary region. The stomach was blown out by retained gas and food, which was not allowed to pass the pylorus, while the muscles of the wall were in a state of strain or spasm. There was an excess of acid in the contents, hydrochloric or lactic, which kept the pylorus shut. The stomach was supplied by the vagus, and other organs supplied by this nerve suffered reflex effects. Attacks of asthma were often brought on by this condition of stomach and the so-called stomach cough. The heart was frequently affected reflexly, and also by pressure on the right auricle and ventricle, which lie on the diaphragm just above the stomach. Palpitation in many cases was due to this flatulent distension. In paroxysmal tachycardia the attacks of rapid heart beat were often caused by it. Intermittency and irregularity of the pulse, giddiness and fainting, and even sudden death were liable to occur from this disorder of the stomach, when the heart wall was weakened by degeneration or myocarditis. In pneumonia and other fevers high gastric resonance was a danger. Pseudo angina pectoris was nearly always due to stomach disorder, and attacks of true angina might be brought on by it in those with diseased coronary vessels. Marked vertigo may occur, when the head swims but objects do not appear to rotate or the floor to rock, as in cerebral vertigo. The second condition of stomach giving rise to remote effects was the dilated stomach. When the patient was recumbent a splash could be obtained by succussion down to or below the umbilical level. The stomach wall was atonic and the gastric juice deficient in acid, allowing fermentation to take place and ptomaines to be formed. There was no spasm of the pylorus, since, on raising the hips on pillows, to put the stomach above the level of the pylorus, fluid could be at once heard gurgling out of the stomach. The most frequent effect of this condition was depression of spirits, sometimes amounting almost to melancholia. Sleeplessness was another result, the most characteristic being when the patient got to sleep, but awoke at 2 A.M. or 3, and was unable to go to sleep again. He concluded with some remarks on treatment.—Dr. R. J. Ryle, Dr. Bailey, Dr. S. B. Figgis, Dr. Alexander Morrison, Dr. Donald G. Hall, and Mr. H. N. Fletcher took part in subsequent discussion.—A hearty vote of thanks was passed to Mr. George Morgan for a series of micro-photographs presented by him to the society.

THE DEATH OF DR. LOUIS MERCK.—It is with great regret that we have to announce the decease on Sept. 14th of Geheimrat Dr. Louis Merck, of Darmstadt. He has for a number of years been head of the firm of E. Merck, chemical works, Darmstadt, and his loss will be keenly felt by all who had either personal or business relations with him.

BOOKS, ETC., RECEIVED.

ASH (CLAUDIUS), SONS, AND CO., LIMITED, Broad-street, Golden-square, London, W.

John Hunter and Odontology. By J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S., Dental Surgeon to the Royal Dental Hospital of London and to the Charing Cross Hospital; Examiner in Dental Surgery, Royal College of Surgeons of England; Hon. Curator, Odontological Collection of the Museum of the Royal College of Surgeons of England. Price 20s. net.

BOMBAY NATURAL HISTORY SOCIETY, Bombay. DULAU AND CO., 37, Soho-square, London, W.

The Poisonous Terrestrial Snakes of our British Indian Dominions (including Ceylon) and how to Recognise Them. With Symptoms of Snake Poisoning and Treatment. By Major F. Wall, I.M.S., C.M.Z.S. Third edition, fourth thousand. Price Rs.3.

F. M. S. GOVERNMENT PRINTING OFFICES, Kuala Lumpur.

Short Key to the Identification of the Anopheline Mosquitoes of Malaya. For the Use of Medical Officers and Others. By C. Strickland, M.A., M.B. Cantab., Travelling Medical Entomologist, F.M.S., late Assistant to the Quick Professor in the University of Cambridge. Price not stated.

HERRICK BOOK AND STATIONERY COMPANY, Denver, Colorado.

The Ophthalmic Year Book. Volume IX. Combining a Digest of the Literature of Ophthalmology for the Years 1911 and 1912. Edited by Edward Jackson, M.D., Professor of Ophthalmology in the University of Colorado, with assistance. Price not stated.

IMPRIMERIE DE LA SOCIÉTÉ ANONYME FRANKLIN, Budapest.

L'Enseignement de la Médecine et l'Enseignement Médical Complémentaire en Hongrie. Rapport présenté à la Conférence Internationale de Londres (Août, 1913). Par le Prof. Dr. Emile de Grosz, Budapest. Price not stated.

JORDAN AND SONS, LIMITED, 116 and 117, Chancery-lane, London, W.C.

The Law of Domestic Servants, with a Chapter on the National Insurance Act, 1911. By J. D. Casswell, B.A., of the Middle Temple and the Western Circuit, Barrister-at-Law. Price 1s. 6d. net.

KABITZSCH, CURT, Wurzburg.

Die Untersuchung der Luftwege. Ein Vortrag zur Einführung in die moc [illegible] Aerzte und Studierende. Von Dr. [illegible] Direktor der Königlichen [illegible] und Nasenkranke zu Konigsberg i.Pr. Price M.2.

KIMPTON, HENRY, London. STENHOUSE, ALEXANDER, Glasgow.

Vaccine and Serum Therapy., Including also a Study of Infections, Theories of Immunity, Specific Diagnosis and Chemotherapy. By Edwin Henry Schorer, B.S., M.D., Dr.P.H. Second revised edition Price 12s. 6d. net.

Ge[illegible]

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

The Deaf. [illegible] and Scho[illegible] tions for [illegible] moting t[illegible] London, W.C. Price 6d. net.

MACMILLAN AND CO., LIMITED, London.

The Nervous and Chemical Regulators of Metabolism. Lectures By D. Noel Paton, M.D., B.Sc., Professor of Physiology in the University of Glasgow. Price 6s. net.

MARHOLD, CARL, Halle a.S.

Sammlung zwangloser Abhandlungen aus dem Gebiete der Dermatologie, der Syphilidologie und der Krankheiten des Urogenitalapparates. Herausgegeben von Professor Dr. J. Jadassohn in Bern.

II. Band, Heft 2. Diagnose und Therapie der syphilogenen Erkrankungen des Zentralnervensystems. Von Dr. M. Nonne, Oberarzt am allgemeinen Krankenhaus Hamburg-Eppendorf. Price M 1 50.

II. Band, Heft 3. Ueber Kinderekzeme. Von Prof Dr. V. Klingmuller in Kiel. Price M.1.

[illegible] ung der [illegible] e M.3. [illegible] ärztliche [illegible] Price M 1. [illegible] Dr. R. [illegible] Verdau- [illegible] on Dr. A. Albu in Berlin.

IV. Band, Heft 7. Der Magensaftfluss und verwandte Sekretionsstörungen. Von Sanitätsrat Dr. A. Gunzburg, Frankfurt a.M. Price M.2.

IV. Band, Heft 8. Zur Pathogenese, Klinik und Therapie der erworbenen Mastdarmstrikturen. Von Dr. Ernst Ruge, Frankfurt Oder. Price M.1.50.

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SAUNDERS (W. B.), COMPANY, London and Philadelphia.

[illegible] fessor of Gastro-enterology in [illegible] Surgeons, Baltimore, and Jo[illegible] Diseases of Children in the Co[illegible] Baltimore. Fourth edition, t[illegible] Price, cloth, 18s net.

Obstetrics for Nurses. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Fourth edition, thoro[illegible]

A Laboratory Manual [illegible] Drew, Ph D., Assista[illegible] tory, Woods Hole, [illegible]

A [illegible] By Francis X. Dercum, [illegible] and Mental Diseases, [illegible] Price, cloth, 13s. net.

URBAN UND SCHWARZENBERG, Berlin und Wien

Spezielle Pathologie und Therapie innerer Krankheiten. In 10 Bänden Herausgegeben von Friedrich Kraus und Theodor Brugsch in Berlin Lieferung 9-12. Price M.8 (Preis jeder Lieferung M.2, or K.2.40.)

VOGEL, F. C. W., Leipzig.

Grundriss der Pharmakologie in Bezug auf Arzneimittellehre und Toxikologie Von O Schmiedeberg, Ord. Prof. der Pharma[illegible]

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

[illegible] of the county of Cork.

CHALLENOR, LIONEL, M.R.C.S., L.R.C.P. Lond., has been appointed First House Surgeon at the Leicester Royal Infirmary.

[illegible] ted Certifying [illegible] r the Lisbellaw

[illegible] tifying Surgeon [illegible] avaddy District

[illegible] pointed Indoor [illegible] en's Hospital.

[illegible] has been [illegible] orkmen's Com- [illegible] Kinross, to be [illegible] with Kinross District

REI[illegible]

RIT[illegible]

SHA[illegible]

WA[illegible] House

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Assistant Physician. Salary £140 per [illegible] with apartments, board, and washing

BIRMINGHAM CITY ASYLUM, Rubery Hill.—Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.

BIRMINGHAM CITY FEVER HOSPITAL, Little Bromwich.—Assistant Medical Officer. Salary £160 per annum, with board and residence.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRADFORD POOR LAW UNION HOSPITAL AND WORKHOUSE.—Assistant Resident Medical Officer, unmarried Salary £130 per annum, with rations, apartments, and laundry.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £80 per annum, with apartments, board, and laundry.

BRIGHTON THROAT AND EAR HOSPITAL, Church street, Queen's road.—Non resident House Surgeon for six months Salary at rate of £100 per annum

BRISTOL ROYAL INFIRMARY.—Three House Surgeons and One House Physician. Salaries at rate of £100 per annum. Also Throat, [illegible] and laundry.

CARDIFF, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION.—Assistant Tuberculosis Physicians. Salary £300 per annum

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd street, St. Pancras, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Resident Medical Officer. Salary £150 per annum, with board, &c.

CITY OF LONDON LYING IN HOSPITAL, City-road, E.C.—Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, lodging, and washing

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

Dorchester, Dorset County Hospital.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

Dumfries and Galloway Royal Infirmary.—Assistant House Surgeon. Salary £65 per annum, with board and washing.

Durham County Asylum.—Third and Fourth Assistant Medical Officers, unmarried. Salary £200 per annum, with board, lodging, and washing.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and laundry.

Enniskillen, Fermanagh County Hospital.—House Surgeon. Salary £72 per annum.

Evelina Hospital for Sick Children, Southwark, London, S.E.—Ten Clinical Assistants in Out-patient Departments.

Exminster, Devon County Asylum.—Junior Assistant Medical Officer. Salary £200 per annum, with quarters, board, and laundry.

Farringdon General Dispensary and Lying-in Charity, 17, Bartlett's-buildings, Holborn Circus, E.C.—Honorary Physician.

Gartloch Mental Hospital, Gartcosh, near Glasgow.—Directorship of the Scottish Western Asylums' Research Institute.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Assistant Physician.

Halifax Royal Infirmary.—Second House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing. Also Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

Hampstead General and North-West London Hospital.—In-Patients' Department, Haverstock-hill: House Physician and House Surgeon for six months. Salaries at rate of £70 per annum, with board, residence, and laundry. Camden Town Out-Patients' Department:—Resident Casualty Officer. Salary £140 per annum, with board residence, and laundry. Also Assistant Casualty Officer for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

Hastings, East Sussex Hospital.—Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

Hemel Hempstead, West Herts Hospital.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

Holborn Union Infirmary, Upper Holloway, N.—Second Assistant Medical Officer. Salary £100 per annum, with board, apartments, and washing.

Hospital for Consumption and Diseases of the Chest, Brompton.—Resident Medical Officer, unmarried. Salary £200 per annum, with board and residence.

Hull Royal Infirmary.—House Physician, unmarried. Also Assistant House Surgeon. Salary £100 per annum in each case, with board and lodging.

Kent County Council.—Tuberculosis Officer. Salary at rate of £500 per annum.

Kettering and District General Hospital.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

King's College Hospital.—Resident Assistant Clinical Pathologist. Salary £60 per annum, with board and lodging.

Leamington, Warneford, Leamington, and South Warwickshire General Hospital.—House Physician. Salary £85 per annum, with board, residence, and laundry.

Leeds Public Dispensary.—Junior Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

Leeds University.—Research Assistant in Department of Pathology. Salary £150 per annum.

Leicester Royal Infirmary.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

Liverpool, City of.—Assistant Tuberculosis Officer. Salary at rate of £400 per annum.

Liverpool Education Committee.—School Medical Officer. Salary £250 per annum.

Liverpool Stanley Hospital.—Senior Resident Officer. Salary £125 per annum, with board, residence, and laundry.

London Homœopathic Hospital, Great Ormond-street, and Queen-square, W.C.—Resident Medical Officers. Salary at rate of £80 per annum, with board, apartments, and laundry.

Macclesfield General Infirmary.—Senior House Surgeon and Junior House Surgeon. Salary £100 and £80 per annum respectively, with board and residence.

Manchester Children's Hospital, Out-patients' Department, Gartside-street, Manchester.—Assistant Medical Officer for six months. Salary £100 per annum.

Manchester Ear Hospital, Grosvenor-square, Oxford-road, Manchester.—Honorary Assistant Surgeon.

Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

Manchester Royal Infirmary.—Resident Surgical Officer, unmarried. Salary £150 per annum, with board and residence.

Manchester Workhouse, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with rations, apartments, washing, attendance, &c.

Margaret-street Hospital for Consumption and Diseases of the Chest, 26, Margaret-street, Cavendish-square, W.—Honorary Laryngologist.

Metropolitan Water Board.—District Medical Officers.

Middlesbrough North Ormesby Hospital.—Assistant House Surgeon. Salary at rate of £90 per annum for first six months and £100 per annum afterwards, with board, apartments, washing, and attendance.

Middlesbrough, North Riding Infirmary.—Senior House Surgeon. Salary at rate of £100 per annum for first six months, with board, residence, and laundry.

Monmouthshire Education Committee.—Third Assistant Medical Officer. Salary £250 per annum.

National Health Insurance Commission (England).—Medical Officers. Salary £500 per annum.

Newark-upon-Trent Hospital.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

Newcastle-upon-Tyne Dispensary.—Visiting Medical Assistants. Salary £200 per annum.

Norfolk Education Committee.—Assistant Medical Officer. Salary £250 per annum.

Northamptonshire County Council Education Committee.—Assistant School Medical Officer. Salary £250 per annum.

Nottingham Workhouse and Infirmary.—Resident Assistant Medica Officer, unmarried, for six months. Salary at rate of £165 pe annum, with apartments, board, attendance, and washing.

Plymouth, South Devon and East Cornwall Hospital.—Hous Physician for six months. Salary £75 per annum, with board residence, and washing.

Rochdale Infirmary.—Second House Surgeon, unmarried. Salar £100 per annum, with board, residence, and laundry.

Royal London Ophthalmic Hospital, City-road, E.C.—Senio House Surgeon. Salary £100 per annum, with board and resi dence.

Royal National Orthopædic Hospital.—[illegible] £105 per annum. Also Resident Hous [illegible] six months. Salary £100 per annum, [illegible] washing.

St. Giles, Camberwell, Infirmary, Brunswick-square, Camberwell—Assistant Medical Officer. Salary £150 per annum, with apart ments, board, and washing.

St. Mary's Hospital for Women and Children, Plaistow, E.—Junior Resident Medical Officer, unmarried, for seven months Salary at rate of £70 per annum, with residence, board, an laundry.

Salford Union Infirmary.—Resident Assistant Medical Officer, un married. Salary £120 per annum, with apartments, attendance and rations.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—Resident House Surgeon. Salary £80 per annum, with board an residence.

Seamen's Hospital Society.—Dreadnought Hospital, Greenwich Two House Physicians and Two House Surgeons. Salary £50 pe annum each, with board, residence, and washing. Albert Doc Hospital, Connaught-road, E.: House Surgeon; also Hous Surgeon to Out-patients. Salary £75 per annum each, with board residence, and washing. All for six months.

Sheffield Union Hospital, Firvale.—Resident Assistant Medica Officer, unmarried. Salary £120 per annum, with apartments rations, &c.

Southampton, Royal South Hants and Southampton Hospital.—House Physician. Salary at rate of £100 per annum, with rooms board, and washing.

Swansea General and Eye Hospital.—House Surgeon. Salar £100 per annum, with board, washing, and attendance.

Ventnor, Royal National Hospital for Consumption and Disease of the Chest on the Separate Principle.—Assistant Residen Medical Officer, unmarried. Salary £100 per annum, with board lodging, &c.

Wakefield General Hospital.—Second House Surgeon, unmarrie Salary £100 per annum, with board, lodging, and washing.

Warrington Infirmary and Dispensary.—Junior House Surgeo for six months. Salary at rate of £120 per annum, with apartment maintenance, and laundry.

Warrington, Lancashire County Asylum, Winwick.—Assistan Medical Officer. Salary £200 per annum, with board, apartment attendance, and washing. Also Locum Tenens Medical Officer.

Warrington Union.—Assistant Resident Medical Officer. Salary £1 per annum, with apartments, rations, &c.

West Bromwich and District Hospital.—Assistant Resident Hou Surgeon and Anæsthetist, unmarried. Salary £75 per annum, wi board, residence, and washing.

West Ham Borough Asylum, Goodmayes, Ilford.—Junior Assista Medical Officer, unmarried. Salary £200 per annum, with apar ments, board, washing, and attendance.

West Ham and Eastern General Hospital, Stratford, E.—Juni House Surgeon. Salary at rate of £75 per annum.

Wigan, Royal Albert Edward Infirmary and Dispensary.—Junior House Surgeon. Salary £100 per annum, with ration apartments, and washing.

Windsor, King Edward VII. Hospital for Windsor, Eton, an District.—Second House Surgeon. Salary £75 per annum, wi residence, board, laundry, and attendance.

York Dispensary and Maternity Hospital.—Resident Medic Officer, unmarried. Salary £140 per annum, with board, lodgin and attendance.

The Chief Inspector of Factories, Home Office, London, S.W., giv notice of vacancies as Certifying Surgeons under the Factory an Workshop Acts at Passage, in the county of Cork; at Wigton, i the county of Cumberland; and at Dursley, in the county o Somerset.

Births, Marriages, and Deaths.

BIRTHS.

Cawston.—On Sept. 14th, at Brecon House, Wantage, the wife A. E. Cawston, M.R.C.S., L.R.C.P., of a daughter.

Hardie.—On Sept. 14th, at Wood-street, Barnet, the wife of Charles Hardie, M.A., M.B., of a son.

MARRIAGES.

Hutchinson—Whittaker.—On Saturday, Sept. 6th, at Christ Chur Surbiton, Surrey, by the [illegible] Richard Ce [illegible] ales, Hutchinson, M.B., Ch.B., D. [illegible] red a Gwendoline Mary Bushnell [illegible] Mrs. Geary, late of Kingston Hill.

DEATHS.

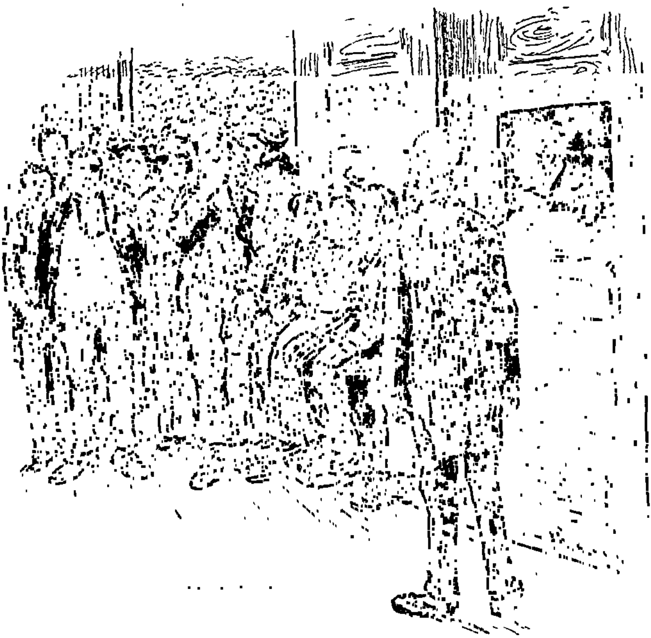
Allen.—On August 13th, at 211, Commercial-road, Pietermaritzbu Natal, James Franklin Allen, M.D. R.U.I., M.Ch.

Tennent.—On Sept. 13th, at Bath-street, Glasgow, Gavin Paters Tennent, M.D.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PRICE OF POPULARITY.



OUR Special Commissioner in making his investigations in different parts of the United Kingdom has often alluded to the position of a practitioner who, having gone on to the panel, found his *clientèle* so huge as to be embarrassing. His plight is depicted in the accompanying sketch with pardonable exaggeration by the adroit and well-known pen of Mr. *Atkinson*, who has given the original of our reproduction to Miss Alice Browne to be sold for the benefit of the Royal Medical Benevolent Fund Guild. The work of that Guild, to which frequent allusion has been made in our columns, is so good that we hope to learn that Miss Browne (who may be addressed at 76, South Side, Clapham Common, S.W.) has received a good price for Mr. Atkinson's drawing. The *Pall Mall Gazette* recently contained a story relating to a practitioner who had gone on the panel, and whose public repute was such that he had to institute an "early door"; Mr. Atkinson's admirable drawing suggests that such a move might be needed in some instances.

CLIMATE AND DISEASES OF GERMAN EAST AFRICA.

A SOMEWHAT extended report on this subject, covering the years 1909-12, was recently received at the Foreign Office from Mr. Vice-Consul Norman-King, and has now been presented to both Houses of Parliament. From this it appears that according to Government official returns the total native population on Jan. 1st, 1912, was 7,495,800; the coloured population (other than native), 14,933; and the white population, 4866. Of the latter, 3579 were of German nationality, 128 were British, and 268 were British colonial subjects (principally Boers). The district of *Moschi contains most* British subjects—46 British and 234 Boers.

The climate (the report states) on the coast, where the air is heavily charged with moisture, is hot and enervating. There is always a certain amount of fever, and the coast towns cannot be regarded as satisfactory places of permanent residence for Europeans. The highlands in the interior are, however, for the most part healthy. The nights are always cool, and in some places mosquito nets can be dispensed with. At the same time some of the favourite districts for European settlement are not free from reproach. Malaria exists in the Kilimandjaro-Meru district; and in Leganga—the centre of the settlement district of the Kolonial Gesellschaft, *which is 4500 feet above sea level—malaria is endemic.* On several of the European rubber plantations which appear to enjoy an immunity from mosquitoes cases of fever are frequent. The diseases most dangerous to Europeans are malaria, blackwater fever, and dysentery The mortality among Europeans was 2·18 per cent. in 1908-09, 2·53 in 1909-10, and 2·03 in 1910-11. Of the 89 Europeans who died in the Protectorate in 1910, 12 died from malaria, 14 from blackwater fever, and 4 from dysentery.

There are excellent hospitals for Europeans at Dar-es-Salaam and Tanga under the supervision of Government medical officers and trained nurses. There are also hospitals for natives at the same places. The Sewa Haji Hospital at Dar-es-Salaam was founded in 1893 by an Indian *for coloured patients.* There are Government sanatoriums at Wugiri, in West Usambara, and at Amani. The principal diseases affecting the native population are small-pox, chicken-pox, worm diseases, and malaria. Systematic vaccination is being carried out by the Government. A serious outbreak of small-pox occurred among the labourers at the railhead of the Central Railway near Morogoro in 1909. The disease spread rapidly over a wide area; 1114 cases occurred with 376 deaths. Its further spread was prevented by the Government's energetic measures, and 892,842 natives were vaccinated in 1909. About 800,000 were vaccinated in 1910, and only 139 cases occurred in that year. Worm disease is being energetically combated by means of the thymol treatment and by systematic instruction of whites and natives alike on the importance of hygienic conditions.

Owing to the comparatively dry seasons which have prevailed lately, malaria, which with recurrent fever and dysentery is always endemic, did not come to any serious outbreak among the native population. The Government is doing much to check the progress of malaria at Dar-es-Salaam and Tanga by distributing quinine to the natives and by energetic measures to destroy the mosquitoes. Small outbreaks of plague have occurred in recent years, and the destruction of rats is being carried out systematically; over 60,000 were destroyed in 1910. Sleeping sickness probably entered German East Africa from British or Congolese territory, and its spread caused grave anxiety to the Government. The form of the disease related to glossina palpalis occurs in three *districts—in the Bukoba and* Muansa districts, on the shores of Victoria Nyanza, and on the east coast of Tanganyika. An outbreak of the Rhodesia form of sleeping-sickness transmitted by glossina morsitans, and doubtless introduced from Portuguese territory, occurred in the southern districts of the Protectorate in 1912; 51 cases were treated. It is believed that the medical authorities have got the disease well under control in the districts near Victoria Nyanza. In the Tanganyika district much is being done by treating the natives with atoxyl, by the organisation of segregation camps, and by destroying the vegetation and the reptiles which harbour the dangerous fly.

The opening up of the interior has enabled the authorities to take measures to combat leprosy. Lepers are isolated in Government stations, where they receive free food and (twice yearly) free clothing. As far as possible these stations are spread over the various districts where leprosy prevails in order that the unfortunate victims may not be taken farther than necessary from their homes. The existence of typhus abdominalis among the native population was conclusively proved in 1909. Several cases were observed in 1910 and 1911, but the disease nowhere occurred as an epidemic. In the latter part of 1912 a serious outbreak of cholera occurred among the native population in the island of Zanzibar. Strict quarantine measures were at once imposed at all the German East African ports, and the disease did not gain a foothold in the Protectorate. Quarantine was not abolished until February, 1913.

In general, it may be said that the native population is on the increase. This increase may be ascribed to the suppressing of tribal feuds by the Government, support in time of famine, and the work of sanitary and medical authorities. The comparatively small number of children is to be attributed less to the habit of early marriage than to infant mortality due to insufficient nourishment. In some of the districts of the interior the complaint is heard that the natives who leave homes to work on distant plantations lose all inclination for family and home life, but how far this is detrimental to the increase of the population has not yet been established.

REX *v.* HAMILTON.

To the Editor of The Lancet.

Sir,—Having heard the whole of the evidence given in the case against Dr. Hamilton, of Essex House, Barnes, which collapsed to-day, I write to say that unless the Crown indicts four of the female witnesses for conspiracy there is no security or protection whatever for medical practitioners having legal custody of certified lunatics or receiving in their houses neurasthenic patients for curative treatment.

I am, Sir, yours faithfully,

Central Criminal Court, Sept. 11th, 1913. Edward Atkin.

BIOLOGICAL APPARATUS.

A very interesting series of new biological apparatus (microtomes, drying machines, incubators, Wassermann baths, centrifuges) is described in a catalogue recently issued by Messrs. Charles Hearson and Co., of 235, Regent-street, London, W. Worthy of special mention is a centrifuge designed by Professor Sheridan Delépine. This is of English make throughout, and the rotor, buckets, and tubes are constructed of duralumin, an aluminium alloy having the strength of steel and yet which is light and proof against corrosion. The new Wassermann vaccine bath has the advantage of being fitted with the Hearson capsule, which affords a complete automatic control of the temperature. The catalogue includes an improved two-jet water-driven centrifuge constructed on lines suggested by Dr. C. J. Martin, of the Lister Institute. The speed varies, of course, with the pressure, but at a pressure of 10 lb. the number of revolutions is 1125 per minute, while at 70 lb. pressure the revolutions are 5625 per minute. The revolving plate carries four 10 c.c. and four 2 c.c. tubes, the latter being introduced for the purpose of "centrifuging" blood.

A LITTLE PROBLEM.

To the Editor of The Lancet.

Sir,—I have a patient at the seaside. He is living, say, four miles (at any rate the *bona-fide* distance) from a certain hotel at which I arranged to meet him yesterday (Sunday) at 4 p.m. I was living for the week-end with a friend two miles on the other side of the hotel. It was important that I should see my patient. There was no question about his right to admission, but they blankly refused me—by law. He could come by conveyance to the rendezvous; I had to walk. They would not allow me into even the garden, notwithstanding that I explained everything. It appeared to me peculiar. It is therefore I ask if this refusal was right.

I am, Sir, yours faithfully,

Great St. Helen's, E.C., Sept. 15th, 1913. H. Cameron Gillies.

⁂ It seems to us that the law did give the proprietor of the hotel a discretion to act as described.—Ed. L.

HEALTH AND CLIMATE OF TEXAS.

An official report by Mr. C. A. S. Perceval, British Consul at Galveston, U.S.A., states that an epidemic of cerebro-spinal meningitis, which made its appearance in Central Texas in the autumn of 1911 and spread to the coast in February, 1912, was the cause of several hundred deaths in the early part of the latter year. It disappeared during the month of May with the advent of warm weather. With this exception the general health was good during 1912. The leading cause of death in Texas is tuberculosis of the lungs, pneumonia being second. The Texas State Board of Health is making an investigation in order to determine the prevalence of hookworm disease among the rural and semi-urban residents of East Texas. In seven counties 48 per cent. of those of all ages examined were found to be infected, while the percentage among the school children was higher. Endeavours are being made to eradicate this disease. The climatic conditions in Texas are excellent for those who dislike cold weather. There is naturally considerable variation between the climate of the northern part of the State and that of the south, which is almost tropical. Winters in the coast districts in which more than three or four frosts occur are rare. The summers are very long in Texas. In the interior temperatures above 100° F. in the shade are frequently experienced in June, July, and August, and sometimes in other months as well.

Suffolk Doctor.—The "Solmedia" produced by Chopping, of Westminster, referred to in The Lancet of Sept. 6th, p. 744, can be obtained from Messrs. Baird and Tatlock, Hatton Garden, E.C.

Communications not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE (University of London), Clinical Theatre, London Hospital, Mile End-road, E.

Demonstrations in Clinical Medicine:—

Monday.—2.15 p.m., Dr. Wall: Pulmonary Tuberculosis.

Tuesday.—2.15 p.m., Dr. Grünbaum: Diseases of the Blood.

Wednesday.—2.15 p.m., Dr. Hutchison: Diagnosis of Abdominal Disease.—Dr. Thompson: Diseases of the Ductless Glands.

Thursday.—2.15 p.m., Dr. Head: Mental Symptoms occurring in the Practice of General Medicine.

Friday.—2.15 p.m., Dr. L. Smith: Common Cardiac Conditions.

Demonstrations on Selected Surgical Cases and on Cases of Interest in the Wards of the Hospital:—

Monday.—10.30 a.m., Mr. R. Howard.

Tuesday.—2 p.m., Mr. Lett.

Wednesday.—2 p.m., Mr. Warren.

Thursday.—2 p.m., Mr. R. Milne.

Friday.—2 p.m., Mr. Walton.

THE THROAT HOSPITAL, Golden-square, W.

Monday.—5.15 p.m., Special Demonstration of Selected Cases.

Thursday.—5.15 p.m., Clinical Lecture.

EDINBURGH POST-GRADUATE COURSES IN MEDICINE (in connexion with the University and Royal Colleges).

Monday.—9 a.m., Obstetrical Clinic (at the Royal Maternity Hospital); Refraction (at the Royal Infirmary); Operative Surgery (at the University). 10 a.m., Neurology (at the Royal Infirmary); Operative Surgery (at the University). 11 a.m., Dermatology, Post-mortems, Genito-urinary Surgery (at the Royal Infirmary); 12 noon, Surgical Clinic (at the Royal Hospital for Sick [illegible] Surgery (at the Royal Infirmary). 2 [illegible] atomy (at the University). 3 [illegible] thology, Histological Method [illegible] cial Lecture (at the University [illegible] he University); Gynecological [illegible] Operative

Tuesday.—9 a.m., [illegible] Surgery (at the [illegible] (at the Royal Infirmary); [illegible] 11 a.m., Medical Clinic, Surgical Out-patients, Post-mortems, Gynecology (at the Royal Infirmary); Operations (at the Royal Hospital for Sick Children); Genito-urinary Surgery (at the Royal Infirmary). 12 noon, Medical Clinic (at the Royal Hospital for Sick Children); Diseases of Eye, Genito-urinary Surgery (at the Royal Infirmary). 2 p.m., Bacteriology, Surgical Anatomy (at the University). 3.30 p.m., Tropical Diseases, Surgical Pathology, Histological Methods (at the University). 5 p.m., Radium Therapy (at the Royal Infirmary). 6 p.m., Infant Feeding (at the University); Gynecological and Obstetric Pathology.

Wednesday.—9 a.m., Obstetric Clinic (at the Royal Maternity Hospital); Refraction (at the Royal Infirmary); Operative Surgery (at the University). 10 a.m., Neurology (at the Royal [illegible] gery (at the University). 11 a.m., [illegible] s, Genito-urinary Surgery (at the [illegible] n, Surgical Clinic, Genito-urinary [illegible] ary). 2 p.m., Bacteriology, Surgical [illegible] atology, Surgical Anatomy (at the University). 3.30 [illegible] Pathology, Histological Methods (a [illegible] Special Lecture. 6 p.m., Infant Feeding [illegible] Gynecological and Obstetric Pathology.

Thursday.—9 a.m., Refraction (at the Royal Infirmary); Operative Surgery (at the University). 10 a.m., Neurology, Gynecology (at the Royal Infirmary); Operative Surgery (at the University). 11 a.m., Medical Clinic, Surgical Out-patients, Post-mortems, Gynecology (at the Royal Infirmary); Operations (at the Royal Hospital for Sick Children); Genito-urinary Surgery (at the Royal Infirmary). 12 noon, Medical Clinic (at the Royal Hospital for Sick Children); Diseases of Eye, Genito-urinary Surgery (at the Royal Infirmary). 2 p.m., Bacteriology, Surgical Anatomy (at the University). 3.30 p.m., Tropical Diseases, Surgical Pathology, Histological Methods (at the University). 5 p.m., Radium Therapy (at the Royal Infirmary). 6 p.m., Infant Feeding (at the University); Gynecology and Obstetric Pathology.

Friday.—9 a.m., Obstetric Clinic (at the Royal Maternity Hospital); Refraction (at the Royal Infirmary); Operative Surgery (at the University). 10 a.m., Neurology (at the Royal Infirmary); Operative Surgery (at the University). 11 a.m., Dermatology, Post-mortems, Genito-urinary Surgery (at the Royal Infirmary). 12 noon, Surgical Clinic, Genito-urinary Surgery (at the Royal Infirmary). 2 p.m., Bacteriology, Surgical Anatomy (at the University). 3.30 p.m., Hæmatology, Surgical Pathology, Histological Methods (at the University). 5 p.m., Special Lecture. 6 p.m., Infant Feeding (at the University); Gynecological and Obstetric Pathology.

Saturday.—9 a.m., Tropical Diseases (at the University); 10 a.m., Fevers (at the City Hospital); Gynecology (*at the* Royal Infirmary). 11 a.m., Gynecology (at the Royal Infirmary).

ROTUNDA HOSPITAL POST GRADUATE COURSES, Dublin.

[illegible] M., Examination of Patients

[illegible] ecture Uterine Tumours

[illegible] Examination of Patients

For further particulars of the above Lectures, &c., see Advertisement Pages

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced —

April 26th–Nov. 5th (Ghent) —International Exhibition.
May 31st to October (London, Earl's Court).—Imperial Services Exhibition.
May–October (Leipzig).—First International Building Exhibition.
June–C [illegible]
June 2 [illegible]
Wellcome.)
Sept 21st–26th (Vienna).—Eighty fifth Meeting of German Natural Philosophers and Physicians.
" 22nd–28th (Milan).—Fourteenth International Anti alcoholic Congress.
" 30th–Oct. 3rd (Southampton).—Church Congress
Oct. 1st (London, Shepherd's Bush) —National Gas Exhibition
" 28th–Nov. 1st (London, Royal Horticultural Hall) —Twenty-fourth Universal Cookery and Food Exhibition
(Chicago) —Congress of the International Association of Refrigeration
(Washington).—Congress of American Physicians and Surgeons

In 1914 —
April 14th–18th (New York) —Fourth Congress of the International Surgical Society.
May 1st–Nov. 1st (Lyons) —International Town Life Exhibition
[illegible] gress
Sept. 7th–12th (Berne) —International Congress for Neurology, *Psychiatry, and Psychology*.
September (Vienna) —Third International Congress for Diseases of Occupation.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m by Steward's Instruments)

THE LANCET Office, Sept. 17th, 1913

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain fall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks
Sept 11	30 17	W.		106	69	53	55	57	Fine
" 12	29 85	W	.	115	69	57	60	62	Cloudy
" 13	29 51	WSW	. .	108	69	56	58	59	Misty
" 14	29 34	S	0 05	110	71	54	56	60	Fine
" 15	29 50	S E	0 07	107	65	52	54	56	Fine
" 16	29 63	S E	0 03	102	66	48	54	55	Fine
" 17	29 57	S W.	0 39	98	67	53	54	54	Overcast

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial Staff It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol I. of 1913, which was completed with the issue of June 28th, were given in THE LANCET of July 5th

VOLUMES AND CASES

VOLUMES for the first half of the year 1913 are now ready. Bound in cloth, gilt lettered, price 16*s* carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s* , by post 2*s* 3*d*.

To be obtained *on application to the Manager, accompanied* by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c , should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

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The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

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SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S A.

The following journals, magazines, &c., have been received:— American Medicine, Jahrbuch für Kinderheilkunde und Physische Erziehung, Tuberculosis, British Journal of Dental Science, Archives of the Roentgen Ray, Medical Chronicle, British Journal of Children's Diseases, Maryland Medical Journal, Monthly Cyclopedia, Saint Paul Medical Journal, American Journal of Medical Sciences, Therapeutic Gazette, American Journal of Tropical Diseases and Preventive Medicine, Pediatrics, International Journal of Surgery, Archives of Pediatrics St Bartholomew's Hospital Journal, Medical Review, Bulletin of the Johns Hopkins Hospital, Northwestern University Bulletin, Journal of Surgery, Symons's Meteorological Magazine, South African Medical Record not a few cases in which the first baby suffers severely from inanition while the later children thrive from the beginning. On the other hand, when the nursing of the first child has been very easy, I have sometimes thought that the second is more likely to suffer from dyspepsia as the result of over-feeding. Although no doubt women differ considerably in their response to the stimulus of the infants' sucking, it remains true that the main factor which controls the secretion of milk is provided by the sucking of the child. Overwork and under-feeding of the mother in the later months of lactation can doubtless produce deterioration of the quality of the milk, but in the first establishment of the milk the part of the mother, provided that the nipples are well formed, is comparatively a passive one, and the breasts of a woman in the last stages of exhaustion from some debilitating disease may be full of milk for some time after labour, provided only that the child is strong and hungry.

INANITION IN THE INFANT.

With the most healthy baby and with the most vigorous sucking there is always a period of inanition lasting on an average less than a week from the time of birth, a period, that is to say, in which the amount of milk secreted falls below the physiological needs of the child, and during which there is a fall of weight. With a feeble child, as, for example, after premature birth, this period of inanition is likely to last very much longer. Let me enumerate some of the commoner causes which diminish the appetite of the infant or prevent his proper suction and so prolong the period of inanition. 1. Premature birth. 2. Difficult and prolonged labour with exhaustion of the child, in the worst cases with asphyxia or atelectasis pulmonum. 3. Insufficient heating of the child, from the unnatural separation of mother and child which modern custom imposes. The child whose temperature has been allowed to fall far below normal is torpid and sluggish in its movements and sucks badly. 4. Acute pyrexial infections, many of them obscure and difficult to diagnose, such as bronchitis, broncho-pneumonia, tonsillitis, pyelitis, influenza, otitis media, umbilical sepsis, &c. 5. A primary dyspepsia from over-feeding, and especially from the early and unnecessary administration of additional artificial food, may give rise to inanition and drying up of the breast, because of the resulting loss of appetite and diminished suction. 6. Nasal obstruction—e.g., from adenoid growth or syphilis; cleft palate; ulcerative stomatitis; Bednar's aphthæ. 7. Hypertrophic pyloric stenosis. 8. Dyspnœa from severe congenital heart disease. 9. The mother's nipples may be depressed, cracked, or painful. The diagnosis of inanition should always be followed by a careful search for such causes as these.

When the mother's milk is insufficient in amount symptoms arise which it may be profitable to contrast with the symptoms of dyspepsia, as has been done in the following table:—

Inanition.	*Dyspepsia.*
1. The child is drowsy and is apt to sleep past his meal times. When awake he is sometimes placid and attentive, sometimes fretful and restless, especially when the breast is proffered.	1. Fretfulness, crying, and restlessness by night and day are constantly found.
2. The abdomen is soft and retracted. The child grows long and slender, losing all the natural folds and pads of fat of the healthy infant. Constipation may be marked. The motion is often dry and brittle and high-coloured.	2. The abdomen is blown out. Peristalsis is more active than normal and the audible passage of gas and flatus often accompanies an attack of colic. The fæces are forcibly expelled with an audible escape of gas, and the colicky pain sets the whole body into restless movement. Coils of intestine may be apparent through the skin in cases of long standing and great severity. Ulceration is common around the anus and upon all the surfaces which are brought into contact with the acid and irritating stools in the restless movements of the infant.
3. Vomiting is rare in uncomplicated inanition, but it is to be remembered that the tolerance for food falls in inanition, and the sudden substitution of an ample diet or the sudden institution of forced feeding by a nasal tube may precipitate an attack of dyspepsia.	3. Vomiting is very frequent.
4. The skin is dry, pale, and cool.	4. The skin is apt to show transient erythematous and urticarial blotches.
5. The temperature is subnormal and the pulse slow. I do not believe that the so-called "inanition fever" exists. Pyrexia in inanition is not due to the inanition itself, but is produced by some obscure infection which has destroyed the appetite and has therefore resulted in inanition.	5. The temperature is irregular—the steady temperature of the healthy infant giving place to considerable oscillations of the curve.
6. Syncopal attacks and attacks of cyanosis commonly precede death, which is usually sudden. A terminal infection such as bronchitis or broncho-pneumonia is common.	6. Death is often the result of complications such as bronchitis or broncho-pneumonia or the severer symptoms of intoxication which form the picture of so-called "summer diarrhœa" supervene—partial coma, with fixed, unseeing gaze and half-open eyes, immobility of limbs and unnatural posture, irregular hyperpnœa, high pyrexia, albuminuria, alimentary glycosuria, &c.

When from the symptoms you suspect that the mother's complaint that the milk is insufficient in amount is correct, it is well to watch the conduct of the infant at the breast. If you observe a healthy infant sucking at a breast which is full of milk you will find that every now and then a little milk is apt to be spilt and appears upon the infant's cheeks and lips. In inanition the child is not so likely to spill any because the flow is not sufficiently free. Secondly, a child at a freely running breast will be noticed to make one or two sucking movements, and these will be followed quite regularly by a swallowing movement, and with a finger on the child's larynx it is easy to count the number of the swallowing movements and to compare them with the number of sucking movements. When the breast is comparatively dry the child will suck for a long time without swallowing, and as it pauses to rest before beginning its unprofitable labour again it will even finish with a sucking movement, and no final swallowing movement can be felt.

DISADVANTAGES OF MIXED FEEDING.

Before considering the proper management of inanition at the breast let us consider what is the usual treatment adopted in such cases. The mother almost always is anxious to give the baby some artificial food as well as the breast, and in this she is sometimes supported by doctors and nurses. Now such mixed feeding can be carried out very successfully in the later months of lactation when the secretion of milk is quite firmly established. Mixed feeding may even be successful in the early months of lactation, if we except just those cases which we are now considering—those in which the difficulty lies in the tardy appearance of a sufficient supply of milk. The amount of milk corresponds, as we have seen, with the amount of the child's appetite, and to diminish the feeble appetite by giving artificial food in addition is to ensure a still further decline in the amount of milk secreted by the mother. A torpid and satisfied infant will make no serious attempt to empty a breast which flows with such difficulty. Only hunger will urge him to vigorous effort. In the premature and unnecessary prescription of additional artificial feeding we have the explanation of a great number of cases of so-called inability to suckle. The child which is just holding its own and sucking a bare subsistence prefers the easily running bottle and refuses the difficult breast. Mothers and nurses are naturally apt to be impatient and easily alarmed, so that often before the child is a week or ten days old, because of the failure to gain in weight mixed feeding has been instituted, with the result that the baby refuses the breast, and the lapse of a few more days sees the child launched upon its precarious course of bottle-feeding. It cannot be too strongly emphasised that the artificial feeding of very young infants is a matter of the greatest difficulty, and that dyspepsia produced in the first few weeks of life has indirectly a high mortality. If breast feeding can be obtained for three months the child's digestion attains a certain degree of stability, and thereafter an extreme degree of intolerance for artificial food is rare.

MEASURES TO COMBAT INANITION.

If mixed feeding is seldom successful and aggravates the condition which it purports to relieve, what, then, is to be done? No doubt in a considerable number of cases, in spite of all our efforts, we shall be forced to give additional food. My point is, not that mixed feeding is never necessary and is always to be condemned, but that while a certain period of inanition is physiological and always present, under certain circumstances it [illegible] nd that premature and [illegible] period is a common caus [illegible] Before advising the institution of artificial feeding we should use every means in our power to aid the establishment of the breast secretion, and we should only desist from our efforts when it becomes evident that the infant's vitality is becoming seriously depressed In the great majority of cases inanition gives rise to a fall in weight which is [illegible] There is no sudden downward [illegible] such as is common in severe dys[illegible] food intoxication As a rule, even in severe cases, if proper precautions are taken, weeks may elapse before the fall in weight is considerable ar[illegible] occur Because many of [illegible] power of suction are of [illegible] lapse of time improvement is likely to set in, and when once the corner is turned there is little likelihood of relapse During some pyrexial disorder contracted soon after birth an infant may lose as much as a third of its weight without the appearance of any alarming symptoms Thus during eight weeks of high fever due to pyelitis an infant weighing 8 lb at birth declined in weight to 5 lb 2 oz It suffered severely from inanition and the breasts of the mother were almost dry By the exercise of extraordinary patience and persistence on the part of the mother suckling had not to be abandoned, and at the termination of the infective process the secretion re established itself, and the weight of the child thereafter showed a uniform rise Had this infant been weaned at the height of the disturbance, as was the constantly expressed desire of the nurse, I do not doubt that it would have succumbed to the resulting digestive difficulties In the majority of cases of prolonged inanition at birth waiting is a less evil than weaning at so inopportune a moment Meanwhile, as we wait, much may be done to combat the condition

1 In the first place the infant must be kept very warm Because of a surface area relatively very large heat is lost with very great rapidity by the newly born, especially by those in whom the fat is deficient The infant at birth and until his demands for food are satisfied is to a great extent a cold blooded animal, whose temperature follows passively the temperature of his environment In all mammals Nature has provided a constant source of heat for the newly born in the close contact which exists between mother and young, and it may be not the least important of the functions of the human mother to impart the warmth of her own body to the child and to regulate its temperature by [illegible] When the infant at birth is [illegible] delayed the need of this [illegible] the greater Among the well to-do separation from the mother is the rule from the first The advantages of this are obvious and the disadvantages are minimised or prevented by adopting means of warming the child artificially Among the poorer classes, where the *newly born are commonly kept in close* contact with the mother, the ill effects of inanition are apt to become obvious for the first time when the mother rises from bed "When I got up my milk left me" is the commonest of all complaints and the explanation lies in the activity and vigour of sucking which the infant will display so long as his temperature is kept raised by contact with the mother, and which is replaced by torpor and inaction when the heat of the body has been allowed to fall after the mother has left her bed A nursing mother should be kept in bed not only until the uterus has sufficiently involuted, but also until the milk secretion is so well established that the physiological needs of the child when separated from the mother are amply met The complete separation of mother and child although perhaps necessary and upon all accounts to be enjoined, is entirely unnatural, and if a weakly child is to take no harm the most careful adjustment of the temperature of its immediate environment is necessary For vigorous children who early obtain sufficient food from the breast no refinements are needed For feeble children the use of a single large hot bottle is apt to defeat its own object When the bottle is hot the infant's temperature rises, when it cools the temperature falls, and there is some risk both of overheating and of chilling in the marked fluctuations which may thus occur By using three or four smaller bottles kept at a greater distance from the child, and refilling each in turn at short intervals it is possible to achieve a much greater uniformity of temperature until the heating capacity of the arrangement is proved The rectal temperature of the child should be taken at short intervals Over-heating may be no less harmful than chilling Exposure of a feeble infant in dressing and undressing and in making a medical examination should be avoided The clothing should be as simple as possible, and sometimes it is the easiest plan to keep a weakly child enveloped in cotton wool

2 The child must be put to the breast at regular intervals, and every attempt must be made to induce him to empty it, remembering that it is only when the breast is sucked completely dry that the amount of milk secreted begins to increase, and that with incomplete emptying the daily total declines To achieve the best results a three hourly interval is not too long, each breast being used alternately When the infant refuses to suck more the breast pump should be used and an attempt made to empty the breast completely

3 The mother's health and comfort should receive attention Rest, sleep, and a nourishing diet with a sufficiency of fluid are necessary These points should not be neglected, although it may be that their importance in influencing the secretion of milk has been exaggerated in the past While overwork and under feeding of the mother are common causes of deterioration of the milk and of failure of lactation in the later months they play, comparatively speaking, a small part in the first establishment of the secretion There has been some confusion in the past between the causes which delay the establishment of the secretion in the first instance and the causes which tend to a deterioration of its quality when established

4 Attention should be directed to any cause which may be detected for the failure of lactation, and if such be found suitable treatment should be instituted If atelectasis be present immersion in a hot bath, with momentary douching of the head and neck with cold water, is often effective, for the time being, in restoring both vigorous breathing and more powerful suction Of course, care must be taken to avoid abstracting too much heat from the infant in this process, the contact with the cold water must only be momentary, before the infant is again immersed in the hot water In one well marked case of atelectasis recently in Miriam Ward we had to repeat this manœuvre several times daily for more than a week and although the good effect was always transitory it was astonishing to see how well the child sucked the bottle for a short time after the bath Infections such as bronchitis, broncho pneumonia, pyelitis congenital syphilis, umbilical sepsis, &c, must be treated upon the usual lines *Nasal obstruction may be lessened by syringing* the nostrils with a few drops of a solution of bicarbonate of soda Cleft palate and hare lip may require a surgical operation Bednar's aphthæ should be touched with silver nitrate The pain of cracked nipples may be eased by using a shield under which the fissure may be treated by cocaine *ointment orthoform in powder*, or the compound tincture of benzoin

5 One last device may be mentioned It is incomparably the most effective of all, although, unfortunately, in the nature of things it is one which can only be used in exceptional circumstances More than once among the poor out patients I have induced the mother to put back to the breast the child of a year old which had been weaned only a short time before A few hours of starvation will often overcome any reluctance on the part of the child If he can be induced to suck a few days suffices to overcome all the difficulty The chart represents the weight curve from the first [illegible] the hospital [illegible] to 2 lb 12 [illegible] die The woman in the next bed had a vigorous infant a fortnight old, weighing 8 lb, and she consented to nurse the tiny premature child at her own breast and to lend her baby to the other mother The child of 8 lb was placed six times a day on the dry breasts of the mother of the premature child and attacked his task with a will Eight days later the premature baby was returned to his own mother whose breasts by this time were flowing easily The breast secretion once established did not fail and the baby gave no further cause for anxiety I think we may say that in all probability the

found[10] that symbiosis with amœbæ was not essential, and that, in symbiosis with organisms capable of decomposing proteins, a culture of the bacillus lepræ could be obtained on ordinary media. He also found[11] that the bacillus could be cultivated on media containing amino-acids; tryptophane and cystein are said to be the most important of these substances. Casein was not available here, and an attempt was made to prepare tryptophane from condensed milk, but the quantities obtained were insufficient for experimental purposes. As, in addition, he has stated that trypsinized egg medium will yield equally good results the work of preparing amino-acids was abandoned. We therefore prepared tubes of Dorset's egg medium and inoculated them with pieces of leprous tissue. The surface of the medium was then covered with a sterile solution of trypsin. Duval at first laid stress on the importance of incubation at 32° C., but later he appears to cultivate the organism quite readily at 37° C. Twenty-two tubes in all were inoculated; half of them were incubated at 32° C., and the other half at 37° C. After some days the media in the tubes had been digested into a slushy mass. No evidence was obtained from any of the tubes that proliferation of the bacilli had occurred.

Again following Duval, egg-albumin in Petri dishes was inspissated for three hours at 70° C. and each plate then received a piece of leprous tissue. The surface of the medium was covered with a sterile solution of trypsin and the plates incubated at 37° C. Most of them became contaminated, but in the few which remained uncontaminated there was no evidence of proliferation. Still later Duval and Wellman,[12] [13] following Kedrowsky, recommended the use of placental agar. The method of preparation differs in some respects from that employed by Bayon.[14] Thirty tubes of placental agar, prepared by their method, were inoculated direct with leprous nodules excised from two lepers. The tubes were incubated at 37° C. and after a few days two of them were observed to be contaminated. The remaining 28 tubes have now been under observation for more than six months. A moist condition of the media has been maintained by the procedure already described. In none of these tubes is growth apparent macroscopically, and films prepared from the inoculated nodules show, in our opinion, persistence, but not proliferation of the acid-fast bacilli.

Experiments with Bayon's medium.—This investigator has employed various media, among others placental agar prepared according to the manner described by Kedrowsky. Bayon, in his published works, does not state the method of preparing the placental agar, but, in reply to a communication addressed to him, we were furnished with the necessary particulars, which are as follows: "A fresh placenta is chopped up fine, mixed with its weight of sterile distilled water, and then frozen hard for 12 hours. It is then thawed rapidly at a little over room temperature, say 20° C., and the juice squeezed out with a meat-press. The resulting liquid is rapidly passed through a paper filter and then put through a tandem arrangement of Berkefeld and Doulton filters. It ought now to be absolutely sterile, and has to be mixed with equal quantities of 4 per cent. glycerine-agar under aseptic precautions. The tubes cannot be heated; those that are found to be contaminated have to be thrown away."

Attention must be directed to the question of contaminated tubes. When the process described is accurately followed there should be, as was the case in our experiments, no contaminated tubes. Twenty tubes of this medium were inoculated from one case of leprosy and 15 from another. The tubes have now been incubated for over six months, a moist condition being maintained by the method already described. Not one of them shows contamination, and not one of them shows a culture of the leprosy bacillus.

Experiments with serum water.—Blood was drawn from the jugular vein of a sheep and the serum separated. The serum was mixed with distilled water in the proportion of one of the former to three of the latter. The serum water was filled into tubes and, in the case of those destined for anaerobic cultures, a thick layer of oil (paraffinum liquidum B.P.) was poured on the surface. The media were sterilised by heating for half an hour at 100° C. on three successive days. Eight tubes for aerobic culture were inoculated with pieces of leper tissue obtained from four cases, and 13 tubes for anaerobic culture were inoculated from five cases. The inoculated tubes have now been under observation for three months and no culture has been obtained.

Experiments with salt solution.—Tubes containing salt solution were prepared for aerobic culture and for anaerobic culture with oil as described in the previous section. Five tubes for aerobic culture were inoculated from three cases, and eight tubes for anaerobic culture were inoculated from four cases. The inoculated tubes have now been under observation for three months, and no culture has been obtained.

Experiments with Ringer's fluid.—Tubes containing Ringer's fluid were prepared for aerobic culture and for anaerobic culture with oil as described under serum water. Five tubes for aerobic culture were inoculated from three cases, and eight tubes for anaerobic culture were inoculated from four cases. The inoculated tubes have now been under observation for three months and no culture has been obtained.

Experiments with milk-agar.—Alkaline-agar was mixed with fresh milk in equal proportions. The mixture was transferred to tubes and sterilised. Nineteen slopes of this medium were inoculated from three cases. The inoculated tubes have now been under observation for three months and no culture has been obtained. Milk does not form a homogeneous preparation with + 10 agar and the mixture did not appear suitable.

Contaminating micro-organisms.—These may, for convenience, be grouped into: (1) contaminating micro-organisms introduced with, or at the time of introducing, the nodule; and (2) contaminating micro-organisms introduced subsequently, either by growing through the cottonwool-plug or during the manipulations entailed by the moistening of the media. In the early stages of our investigations, and before sufficient technical skill had been acquired, it not infrequently happened that contaminated nodules were inoculated. On incubation the presence of these organisms was demonstrated by the occurrence of a macroscopic growth, visible, as a rule, within a few days. Colonies of staphylococci call for no special comment. In some instances the nodule showed, on blood media, a brownish growth, at first limited but gradually spreading over the surface of the medium, either as a continuous growth or as isolated colonies. On examination these growths were found, in certain instances, to consist of a slender non-motile rod mixed with large coccoid spores. This organism is of importance, because it would appear that observers have mistaken such spores, when stained by the Ziehl-Neelsen method, for acid-fast organisms. This bacillus grows freely on ordinary agar, forming a yellowish, crinkled growth.

In this connexion reference must be made to Bayon's "acid-resisting" and acid-fast organisms.[15] Anyone who has worked with acid-fast organisms must be aware of the power with which these germs retain the carbol-fuchsin. It is wrong to describe germs as "acid-resisting" because they retain the carbol-fuchsin after momentary immersion in weak acid. It is an attempt to explain his transition stages from a non-acid-fast streptothrix to an acid-fast bacillus; and is, in our experience, unsound and misleading. In common with other workers we have isolated diphtheroid organisms, but these are ubiquitous and demand no special consideration. Granting that either of these contaminating bacilli has a genetic relationship with the bacillus of leprosy, how are the results observed in the following experiment to be explained? Ten tubes of blood agar were inoculated with pieces of leprous tissue from one nodule swarming with acid-fast organisms. On incubation there developed in one of the tubes a culture of a non-acid-fast organism. In the remaining nine tubes no cultures were obtained. It is impossible to believe that in this nodule there was only one part of it [illegible] resent, and [illegible] a non acid [illegible] In other [illegible] treptothrix [illegible] agar in the form of orange-red colonies and on - 10 nutrient agar in the form of greyish brown striated colonies

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[10] Duval, C. W.: The cultivation of the leprosy bacillus from the human tissues with special reference to the amino acids as culture media, Journal of Experimental Medicine, vol. xiii., p. 365.

[11] Loc. cit.

[12] Duval and Wellman: A new and efficient method of cultivating bacillus lepræ from the tissues, with observations on the different strains of acid-fast bacilli found in leprous lesions, Journal of Tropical Medicine, vol. xv., p. 221.

[13] Wellman, C.: A new and efficient medium for the isolation and growth of strictly parasitic or feebly saprophytic bacteria, Centralblatt für Bakteriologie, I. Abt., Orig., Band lxvi, p. 142.

[14] Bayon, H.: Acid-fast and acid-resisting germs cultivated from cases of human leprosy and their determination, Journal of the London School of Tropical Medicine, vol. i., p. 45.

[15] Loc. cit.

Smears prepared from nodules which have become contaminated with either a streptothrix or a bacillus invariably show masses of leprosy bacilli, because these organisms are so abundant in the tissues employed If a tube of nutrient agar be inoculated with an emulsion prepared from such a nodule a growth will readily be obtained, and smears prepared from this may show the presence of some acid fast bacilli among the contaminating organisms, because the former have been so numerous in the inoculated material In the second subculture on nutrient agar acid fast bacilli may or may not be found, most probably not The fact that these contaminating organisms grow in the first subculture on + 10 nutrient agar is strong evidence against them having originated from leprosy bacilli, and, from the numerous examinations made, we have no hesitation in stating that they have no connexion with the leprosy bacillus Several investigators have described in detail the gradual transformation of the acid fast bacilli into non acid-fast organisms They must have been led into error by the mechanical transference of non proliferating acid fast organisms along with freely growing non acid fast saprophytes We know of no organism with strongly parasitic characters and whose saprophytic existence can *only be stimulated by the use of special media*, which will grow freely in the first subculture on ordinary media The organisms belonging to the second group are similar to those mentioned in the first group Very infrequently moulds have been met with

As a type of the contaminations met with the following instance may be quoted On Sept 9th, 1912, eight tubes of - 10 blood agar were inoculated with pieces of a leproma rich in bacilli On the 16th a growth appeared on and around the piece of tissue in one of the tubes Smears showed the presence of a spore bearing bacillus and groups of acid fast bacilli The contaminator grew freely on +10 nutrient agar On Jan 6th 1913, another of the tubes was observed to be contaminated A brownish growth spread upwards from the water of condensation, but there was an interval of about three quarters of an inch between the upper margin of the growth and the piece of leprous tissue That interval was free from the growth, which examination proved to consist of staphylococci and a streptothrix In smears prepared from the nodule there was the usual abundance of acid fast bacilli, but no non acid fast bacilli and no streptothrix Clearly, therefore, the streptothrix could not have originated from the lepra bacillus Subcultures on +10 nutrient agar were prepared and the streptothrix isolated An entire culture in + 10 bouillon, seven days old was injected into the peritoneal cavity of a guinea pig The animal did not become in any way affected Forty days later it was killed, and all the organs appeared to be healthy

An entire culture in + 10 bouillon, 14 days old, was injected into the peritoneal cavity of a second guinea pig This animal died ten days later The animal was well nourished and presented no external lesions On opening the abdomen the great omentum was found to be rolled up [illegible] s This [illegible] mostly of [illegible] tubercle on the surface of the bladder, two on the right seminal vesicle, and a group of them on the under surface of the diaphragm The superior mesenteric glands were enlarged and contained caseous and suppurating tubercles The spleen was enlarged and studded with nodules The kidneys and suprarenal capsules were congested and swollen, but contained no nodules On opening the thorax the upper part of the right lung was found to be solid and caseous In the centre of the inferior lobe there was an aggregation of tubercles surrounded by congested lung tissue Smears from the omentum showed the presence of the streptothrix mixed with cell débris and cocci The streptothrix stained by Gram's method, but it stained poorly and had a granular degenerate appearance

The tubercles in every instance showed the same histological characters The microscopic appearance of those in the lung was similar to that of the nodules which were found in the mesenteric glands and omentum They consisted of sharply defined masses of irregular, necrotic nuclei, embedded in amorphous débris which stained pink with eosin They were not surrounded by epithelioid cells, fibrous tissue, or small cell infiltration Except in the lung they were surrounded by healthy tissue and did not appear to have given rise to any inflammatory reaction No blood-vessels penetrated the substance of the tubercles, and there were no pathological changes in the capillaries of adjacent tissues. The tubercles within the mesenteric glands were situated in the neighbourhood of the divisions of the afferent lymphatic vessels which supply the cortex

In the liver there were no macroscopic lesions, but microscopically numbers of tubercles were found in the portal spaces and in the portal zones of the lobules It was possible to recognise the remains of degenerate liver cells lying amidst the necrotic material which formed these minute nodules, but the trabeculæ surrounding the tubercles appeared normal Within the lung the nodules did not lie in healthy tissue, but were surrounded by a zone of consolidation in which the alveoli and bronchioles were blocked by masses of catarrhal cells External to this the capillaries were intensely congested and the alveoli were filled with a fluid exudate The presence of the streptothrix was not demonstrated in the lung, but it was found in sections of the lymphatic glands, mesentery, and liver, where it was similar in character to that seen in the smears made from the fresh organs No acid fast organisms were found in any of the sections or smears

Summary —Material for purposes of cultivation on various media has now been obtained from 32 non ulcerating nodular cases of leprosy and 373 inoculations made on the various culture media It is curious, in view of the findings of other investigators that we have consistently failed to obtain a culture of the bacillus lepræ There can be no doubt but that material swarming with bacilli has been employed on each occasion This was clearly demonstrated by the microscopical examinations which were made in every case From the examinations made of nodules which have been incubated on culture media for periods ranging from a few days to nine months, no evidence has been obtained that the bacilli had increased or lessened in number Those investigators who have recorded an increase in the number of organisms as a result of microscopical examination must surely have failed to observe the bacterial richness of the material employed for inoculation Anyone who has examined smears prepared from freshly excised leper tissues must be struck with the enormous masses of acid fast bacilli present, and we are unable to comprehend how it is possible to state in a case where no macroscopic growth is apparent that an increase, recognisable only by the microscope,[16] has occurred

THE PATHOLOGY OF THE CONDITION KNOWN AS PARASYPHILIS[1]

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As is well known, the term "parasyphilis" was introduced by Fournier in 1894 to describe certain conditions of an atrophic or degenerative nature which might follow a syphilitic infection According to the original concept and also that of Hermanides the term included under one name such diverse pathological states as dementia paralytica, tabes dorsalis, aortic disease amyloid disease, and cutaneous pigmentations These were looked upon as non syphilitic sequelæ of syphilis—that is to say, degenerative processes *not* due to syphilis, but to which persons with a "syphilitic taint" were particularly liable. It will not be necessary to discuss the majority of the Fournier-Hermanides parasyphilitic conditions, since for many years the term has been applied only to dementia paralytica and tabes dorsalis and certain other diseased states of the central nervous system. The theory that parasyphilis depended essentially upon a previous syphilitic infection was hotly disputed by many, but accepted by such authorities as Erb, Gowers, and Vulpian. The evidence in support of the assumption was purely indirect, and thus only within quite recent times has it been generally accepted. The results of statistical investigations carried out by Erb and many others disclosed the fact that patients who developed parasyphilis were known to have had syphilis in a large percentage of cases, certainly as frequently as tertiary syphilitics were known to have been affected.

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[16] Duval C W Loc cit

[1] A short account of the main pathological results deduced from an Investigation of Parasyphilis by Dr Henry Head Dr E G Fearnsides, and ourselves The full account will be published as a series of papers in *Brain*

Again, the frequent association of syphilis and familial parasyphilis—that is, the occurrence of syphilis or parasyphilis in the wife or children of a parasyphilitic or syphilitic—was remarkable. Towards the same end tended the results of pathological anatomy. The stigmata of syphilis or active syphilitic lesions were often found in cases of parasyphilis; indeed, one and the same nervous system might be affected by the two diseases. The only direct evidence bearing upon the question was the experiment of von Krafft-Ebing. He selected nine cases of dementia paralytica in whom there was no evidence of syphilis and inoculated them with material from a chancre. During a period of observation, lasting 80 days, he observed no lesion at the point of inoculation, and from this result deduced that the subjects of the experiment were syphilitic.

It may thus be stated that the first phase of the syphilis-parasyphilis discussion ended with the general admission that syphilis was by far the commonest cause of parasyphilis, but not the only one. The disease itself was not syphilitic but was a degenerative process resulting from previous deleterious conditions (syphilis, trauma, alcohol, &c.). This view cannot, however, be said to have been unanimous. Many held that syphilis was an essential antecedent to parasyphilis and were not disposed to pay too much attention to those cases in which there was no evidence of syphilis. It was obvious that this was often extremely difficult to obtain.

A further step was then taken in the discussion in particular by the French school of neurologists, who held that parasyphilis was not only essentially associated with syphilis, but was actually an active syphilitic process of the central nervous system. Among those who held this view may be mentioned Marie and Guillain, Nageotte, Leredde, Redlich and Obersteiner, Orr and Rows, and many others whose works are now being remembered after a period of neglect. Marie and Guillain, and Orr and Rows looked upon the condition as a chronic syphilitic inflammation of lymphatic origin; while Nageotte, Leredde, Redlich and Obersteiner, on the other hand, considered that the nerve degeneration was due to a syphilitic meningitis. It cannot be said that these theories were accorded very serious attention, although from the results of the Wassermann reaction it was becoming obvious that syphilis was an essential factor in parasyphilis. It was generally held that, however desirable it might be to look upon parasyphilis as an active syphilitic process, there were two insuperable objections to the view: firstly, the lesion of parasyphilis was not a syphilitic process from the pathological anatomical point of view; and secondly, the effect of antisyphilitic treatment upon the course of parasyphilis was *nil*. Additional objections were also mentioned—namely, the marked lymphocytosis, the increased globulin content, and the positive Wassermann reaction in the cerebro-spinal fluid in parasyphilis, as opposed to the absence of these phenomena in cerebral syphilis.

The end of the second phase in the discussion is thus marked by the general acceptance of the invariable connexion between syphilis and parasyphilis, although the two diseases were held to be different. Parasyphilis was a non-syphilitic sequel of syphilis. Perhaps the view most generally known in this country is Mott's elaboration of the "abiotrophy" theory of Gowers. According to Mott, parasyphilis is due to a primary degeneration of the neurons "owing to a lack of durability, caused by the action of the poison combined with stress," a view which bears some relation to the toxin theory of von Strümpell—i.e., a pos syphilitic paralysis analogous to that occurring in diphtheri It must not, however, be forgotten that the "prima degeneration" theory has been unacceptable to many f several years, and that while some of the "syphilis" theori already mentioned are open to obvious criticism, others ha not been contradicted. Those who have closely followe the modern developments of experimental syphilis hav especially, been dissatisfied with the prevailing views o parasyphilis. This dissatisfaction has rested upon sever factors.

Firstly, the idea of a "primary degeneration" is a abnormal pathological concept. Secondly, in parasyphil there are invariably obvious signs of inflammation, and does not appear obvious why such inflammation should b secondary to the nerve degeneration as supposed by Mott Mott himself and Spielmeyer have shown that in trypanosomiasis a nerve lesion is present similar in type to tha found in parasyphilis, and there is no reason to suppose tha this lesion is not due to the trypanosome. Thirdly, many o the "insuperable objections" advanced against the syphilitic theory of parasyphilis are superable.

The inflammatory reaction in parasyphilis consists, as is well known, of a perivascular infiltration of lymphocytes and plasma cells involving the vessels of the pia and the branches of these which perforate the cerebral substance. In addition to this lesion are found the "primary degeneration" of the neurons and the proliferation of the glia. This microscopic picture is held to be non-syphilitic. We, on the contrary, pointed out in the Section of Neuropathology at the recent International Congress that this lesion is clearly explicable as syphilitic. The interstitial reaction is the same as that which we have found to be present in all stages of syphilis—namely, a perivascular accumulation of lymphocytes and plasma cells; while the nerve lesion is, in our view, directly comparable with the parenchymatous lesions of internal organs due to syphilis. If the parasyphilitic lesion is analysed on these lines, we find as evidence of a reaction to the spirochæta pallida, swelling and chromatolysis of the ganglion cells, proliferation of the neuroglia (fixed interstitial tissues), and the infiltration by the wandering cells mentioned above. All these changes are primary, and occur simultaneously as a reaction to the spirochæta pallida; they are not primary or secondary to one another. The result of this reaction to intoxication will be degeneration of the neurons if the injury is great enough, since the highly specialised parenchymatous cell has little or no power of regeneration. The final result will then be a degenerated parenchyma and consequent complete loss of function with its attendant and obvious clinical symptoms.

When this process is compared with a diffuse syphilitic inflammation of the testis, for instance, the points of similarity will be clear. A reaction of the parenchyma, of the fixed interstitial cells (fibroblasts), and of the wandering cells is apparent. The parenchyma cells degenerate and the testicle becomes atrophied or "diffusely sclerosed." The end result of the lesion is loss of function manifested by sterility. A diffuse syphilitic inflammation of the testicle is not, however, referred to as a "primary degeneration of the spermatogenetic cells" or as "parasyphilis of the testicle." It is described as a "diffuse orchitis," and similarly we should describe dementia paralytica as a "diffuse syphilitic encephalitis" and tabes dorsalis as a "diffuse myelitis of the posterior columns." Thus, in our view the objection that "the changes in the central nervous system in these diseases do not resemble those of true syphilitic lesions" (Mott and Sewell, 1913) does not hold. Undoubtedly they do not obviously resemble the "gummatous" process, but the similarity with "organ syphilis" is close.

The other great objection to the "syphilis" theory of parasyphilis—namely, that the result of treatment is *nil*—may be rapidly disposed of. Firstly, as a result of the recent advances in chemotherapy, the statement must be qualified. A benefit from treatment is frequently obvious. The incurability of parasyphilis is merely relative, and when the nature of the lesion is considered the reason is clear. The result of a therapeutic measure is judged by its effect upon the symptoms, but in parasyphilis the symptoms are due to nerve degeneration. Thus, since the nerves of the central nervous system are not reparable, the symptoms cannot be cured. Although the patient may, then, have little relief, it does not follow that the syphilis causing the symptoms may not be cured In fact, the cases of stationary tabes dorsalis with [illegible] taken [illegible] the a[illegible] be involved It may be taken as a *general* rule that all highly specialised parenchymatous cells are liable to com[illegible]

Among the minor objections to this theory may be mentioned the lymphocytosis and globulin reactions in the cerebro spinal fluid of *parasyphilitics* The view that these reactions are confined to parasyphilis has been shown to be [illegible] over production of antibodies by the nerve cells, thus leading to their dissolution, is not confined to parasyphilis At the [illegible] been carried on [illegible]selves, it became [illegible] present in the cerebro spinal fluid in cases of cerebro spinal syphilis, and at the present time, with improved technique it may be said to be *constant* in cerebro spinal syphilis (Nonne), indeed, in our view it is not only constant but also as strong quantitatively as in parasyphilis The obviously unsatisfactory nature of the objections to the "syphilis' theory led us to state in 1911 that "there is no evidence, however, that para[illegible], from other [illegible]" [illegible]d the views briefly expressed above, in conjunction with Dr Head and Dr Fearnsides, who also made a short communication at the recent congress

At the beginning of the present year however, an event occurred which may be taken as marking the third phase in the [illegible], the demon strat[illegible] in the brains of c[illegible]ve pointed out that spirochæta pallida had not been demonstrated as the etiological factor in parasyphilis, because the intense staining of the nerve fibrils by Levaditi s method completely obscured the microscopic picture This technical difficulty has now been overcome The proceedings of the Neuro pathological Section at the International Congress made it apparent that the discovery of Noguchi had come somewhat as a surprise, and had introduced a certain chaos into the views of the supporters of the "non specific' theory of parasyphilis In his admirable "report" on the subject Nonne makes it clear that the non specific theory must be discarded and dementia paralytica must be described as a "*spirillosis* of the brain" He does not, however, look upon the lesion as a direct result of the activity of the spirochæta pallida, but rather inclines to the view that it is due to the action of toxins derived from these organisms, which have a particular affinity for certain nerve areas Mott, however, appears to hold that the inflammatory infiltrations of dementia paralytica may be due to spirochæta pallida, but that this is not the primary lesion The spirochæta pallida only "takes an active development when the neurons decay"

In Mott's latest view the neurons under normal conditions "are protected against reacting to poisons because the cerebro spinal fluid, which functions as the lymph of the brain contains none of the toxic substances which may be circulating in the blood; but in parasyphilis we must suppose either that the specific organism in some form enters [illegible] side chain molecules antibodies, the same as the rest of the cells of the body But the neurons are perpetual elements incapable of regeneration, so that if other factors besides the stimulating effect of the specific organism or its toxin, conspire to increase their metabolic activity, nutritional equilibrium will not be maintained and decay will set in" It is therefore clear that neither Nonne nor Mott looks upon parasyphilis as a syphilitic lesion similar to those which may be met with in the rest of the body, rather they favour the view that it is an abnormal type of lesion in which "toxins" take the chief part Nonne considers that the intoxication of the nerve cell leads to its degeneration, while Mott supposes, as formerly, that the nerve cells are exhausted by an over production of "antibodies," and that while in this exhausted condition the spirochæta pallida or "other causes" may determine their destruction

A criticism of views expressed at a time when opinions are undergoing considerable modifications will have little value, and therefore we proceed to outline our concept of parasyphilis

It is now generally recognised that an involvement of the central nervous system is of common occurrence in early syphilis, and so much is this the case that Neisser at the International Congress held that no one should be passed as cured of syphilis until the cerebro spinal fluid had been reduced to a fully "normal" condition Clinically the "involvement' may be recognised by a series of symptoms ranging from a mere headache to a complete mental disability and death We imagine that the "headache is an index of meningitis, usually, no doubt, trivial, but nevertheless definite In more pronounced cases the process may involve not only the perivascular lymphatics of the pia but also the perivascular sheaths of the vessels entering the cerebral substance The spirochæta pallida will be numerous in such lesions As in the other forms of syphilis the spirochætæ will tend to leave the neighbourhood of the vessels and to invade the surrounding tissues in this case the brain tissue proper, and in such a manner will occur a subacute or acute encephalitis If such an acute lesion is rapidly subjected to intensive antisyphilitic treatment the great majority of the spirochætæ will be destroyed and the patient will recover without residual signs If not he will become mentally deranged and eventually die These lesions we imagine as occurring in the secondary period, and it will readily be allowed that a small number of spirochætæ may survive and lie dormant during the latent period either in the lymph vascular tissues or in the brain substance proper If now we proceed to investigate the state of affairs at a later date in the tertiary period we find as we shall show later *in extenso* that all the tissues of the body which have been under the influence of the spirochæta in the secondary period are in a state of "hyperallergie' (von Pirquet) They have undergone an invisible change as a result of an immunity process and are hyperimmune to the action of the sensitising virus This hyperimmunity is of such a type that the cell will detect and react to a much smaller quantity of virus than was the case in the secondary period; and further, this reaction will be of an abnormally violent type designed as a protective mechanism but resulting in the case of delicate tissues in destruction The cell receptors are so 'avid" that the virus effects an abnormally strong intoxication This is the explanation of such destructive lesions as the gumma in which the number of spirochætæ is extremely small The gumma is, however, a purely lymph vascular lesion and is due to a focal reaction about a nidus of spirochætæ which has remained dormant in this position. On the other hand the gummatous process may be more diffuse, in which case a number of focal reactions will occur. Finally, the lesion may be so diffuse that the focal perivascular nature may be little evident If such a process occurs in an organ the incidence of the intoxication will also fall largely upon the parenchymatous cells and induce in them an excessive destruction (diffuse orchitis)

From the above account it is clear that ' cerebro-spinal syphilis" is due to a reaction in the altered lymph vascular tissues of the meninges and vessels, and since it is thus focal the brain substance will be little involved If, however, an exacerbation occurs in a nidus of spirochætæ which has been left latent in the nerve tissues from a previous encephalitis, an excessive reaction will follow in these tissues and will [illegible] nerve tissues and [illegible] glia) The infiltrations about the vessels do not suggest the presence of the virus therein, but represent an effort on the part of the wandering cells to reach the neighbourhood of the lesion in order to produce a 'gumma" They are prevented from gaining this position by the adventitial sheath which surrounds the vessels

According to this view there is no essential difference between the lesions of encephalitis of the secondary period and encephalitis of the tertiary (dementia paralytica) except in the greater susceptibility of the tissues in the latter. Thus a particularly toxic secondary encephalitis might simulate the clinical symptoms or even the pathological appearance of dementia paralytica. In this connexion we would point out that in certain of the cases of "general paralysis" in which the spirochæta pallida has been demonstrated neither the clinical sequences nor the microscopic lesions have been entirely typical. In particular we may mention one of the cases of Levaditi, Marie, and Bankowski in which the symptoms so far as they are mentioned and the lesions are more reminiscent of acute encephalitis than dementia paralytica, the spirochætæ being particularly related in large numbers to the blood-vessels. In one illustration, indeed, a spirochæta is shown free in the lumen of the vessel. To our mind this case resembles one described by Marinesco and Minea as "paralysis with meningitis," and which was not included as typical dementia paralytica by the authors. We would suggest that if spirochæta pallida is present in such numbers and also lying in the blood-vessels, there is no reason why they should not have been discovered long ago. In the original accounts and in the specimen sent by Noguchi to Professor Bulloch which we have examined the organisms are extremely sparse and bear no relation to the blood-vessels. Thus it is probable that several of these cases should be classed as acute or subacute encephalitis—that is, an inflammation of unsensitised tissues occurring early in the disease—while dementia paralytica proper should be confined to the lesion of late onset occurring in hypersensitive tissues and due to a small number of organisms. The pathological distinction is not absolute, but from a practical point of view the former are much more open to clinical cure than the latter. We look upon the case of classical dementia paralytica as incurable because the earliest intoxication of the nerves is sufficiently grave to insure their degeneration. In these patients the degeneration is vital owing to its anatomical situation. The case of "acute general paralysis" or "secondary encephalitis" will, on the contrary, react to treatment to a variable degree, for although the number of spirochætæ is large, the tissues are not hypersensitive; on the contrary, the general susceptibility of the secondary period is abnormally low (Anergie). Thus a marked inflammatory disturbance may occur without a grave lesion of the nerves in the early stages. Such patients, however, if left untreated, as may be the case if the state is not recognised, will develop all the mental disabilities of the case of dementia paralytica and will pass to the asylum and die.

So far as concerns tabes dorsalis, the lesion may be looked upon as essentially the same as in dementia paralytica. Nevertheless, it is necessary to account for the striking anatomical distribution of the lesion, and this has already been arrived at by the elaborate researches of Orr and Rows. They have shown that toxins experimentally introduced into the sheaths of the peripheral nerves will produce "tabetic" lesions in the cord and have also detected such lesions in patients suffering from chronic skin conditions. They have thus concluded that tabes dorsalis is a chronic inflammation of lymphogenous origin. Our view utilises the work of Orr and Rows in that we assume that the "sensitising myelitis" ascends by the lymphatic path which they have described to the posterior columns. Here we assume that the spirochætæ remain dormant, and at a later date when the tissues have become hyperimmune an exacerbation will produce an excessive response. The various peculiarities in the pathological anatomy of tabes dorsalis appear to have been satisfactorily elucidated by Orr and Rows.

To sum up our concept of syphilis of the central nervous system, we hold that it consists of two main divisions—one largely or entirely confined to the lymph vascular tissues and the other largely or entirely confined to the brain substance. In each of these two divisions varying numbers of spirochætæ and, even more so, varying sensitisation of the tissues will occasion lesions of varying clinical importance. In the vascular tissues these will range from a slight meningitis to a gummatous process, while in the brain from a slight meningo-encephalitis to tertiary encephalitis (dementia paralytica). It will be admitted that these views are to some extent hypothetical, and are not founded upon a large pathological anatomical experience. This result is, however, due to the fact that the cases now recognised as encephalitis (Wassermann reaction and discovery of the spirochætæ) were formerly not recognised as syphilitic. The "cerebral syphilis" of the literature is practically confined to the gummatous processes. Further, since the patients are susceptible to treatment, a post-mortem examination is a rare occurrence. It is, nevertheless, certain from the rich clinical material and wide experience of Dr. Head and Dr. Fearnsides that the various syphilitic states we have referred to are common.

We wish to point out that in the construction of these views we have been much indebted to a close collaboration with Dr. Head and Dr. Fearnsides, with whom we published a preliminary paper in *Brain*.[2] Finally, we have been influenced throughout by the criticisms of our chief, Professor William Bulloch.

RADIUM RAYS IN THE TREATMENT OF HYPERSECRETION OF THE THYROID GLAND.[3]

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Many favourable reports as to the action of the X rays in Graves's disease have been published. The method of treatment has, in fact, become orthodox. Dr. George R. Murray, in his Address in Medicine to the British Medical Association meeting at Brighton, referred to the use of the X rays as follows: "The application of suitable doses of X rays to the enlarged thyroid gland has in some of my cases proved to be of great value. The gland gradually diminishes in size and the other symptoms subside. Atrophic changes in the secretory epithelium and both interstitial and extracapsular fibrosis appear to be induced by the action of the rays. In two of my cases in which X ray treatment was not successful one lobe of the gland was excised. Microscopical examination showed no fresh change in one, but a distinct increase in the inter-alveolar connective tissue of the other. These changes are slow in development, so that the full effect of the treatment is not obtained until some months have elapsed. In favourable cases some 15 to 20 weekly doses of the rays have been sufficient to bring about great improvement or practical recovery, but in others only slight improvement has followed a similar course of treatment. It is worth while to persevere with X ray treatment for as long as a year. if slow but satisfactory progress is being made. We have, however, still much to learn as to the most appropriate doses and mode of application of this valuable method of treatment."[4] In my opinion, which is based not only theoretically upon the similarity of physical radiations, but also practically upon an experience of four clinical cases, these laudatory remarks as to the action of X rays could quite as justly be applied to the action of radium. But in addition radium has two distinct clinical advantages over the X rays: (1) a perfectly definite dose of it can be given and repeated as often as may be desired; and (2) the radium can be applied without noise or excitement while the patient is in bed. That this is an important advantage in the treatment of this disease every physician will allow. It was for the latter reason that I was led to replace the X rays by radium rays in the treatment of the following case.

Case 1.—The patient, aged 69, the wife of a physician, had suffered from Graves's disease for two years. Her chief symptoms were tachycardia (up to and above 170), nervousness, weakness, exophthalmos, and breathlessness. The thyroid was scarcely enlarged. In December, 1912, I was consulted as to the application of the X rays. Only one application was, however, given, for the excitement and fatigue of having to come to my house for the application, combined with the noise and spluttering of the X ray apparatus, appeared likely, in the patient's nervous condition, to do more harm than good. It then occurred to me to suggest the employment of radium instead of the X rays. I was unaware of any previous use of radium for this condition, but it seemed reasonable to suppose that owing to its action in diminishing vascularity (as in nævi) by the obliteration of various small blood vessels and by the induction of fibrosis some benefit would accrue.

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[2] Brain, 1913, vol. xxxvi., p. 1.

[3] A paper read before the Section of Physiology at the British Association for the Advancement of Science on Sept. 15th, 1913.

[4] The Lancet, July 26th, 1913, p. 202.

After consultation with the patient's medical adviser and with her husband, applications of radium were made over the thyroid on each side of the neck. To begin with, an intensive form of treatment was adopted, several applications of 45 mg. hours screened by silver being given in the first ten days; afterwards the applications were given at greater intervals; altogether the patient received in the course of two or three months a dose of 350 mg. hours. Improvement began very quickly, and has been maintained; the patient's medical attendant and her husband agree as to the benefit she has received. "The exophthalmos is less, the tachycardia is less frequent and marked, the pulse used to go to above 170, now it keeps at about 80, and if it goes above 100 we think it abnormal; the patient is stronger and less nervous, and the respiration is normal." This result was sufficiently encouraging to induce the author to employ the same treatment in other cases.

CASE 2.—A female, aged 25, had suffered from Graves's disease for four years. She complained of nervousness, palpitation, and weakness; right exophthalmos was marked. Treatment was begun on Dec. 18th, 1912, by two applications weekly of the X rays. On Jan. 16th, 1913, the X rays were replaced by radium screened on all but one occasion by silver, half a millimetre thick. By the beginning of May a dose of 205 mg. hours had been given. The patient's medical attendant said in July, 1913, that she was much improved, especially in the exophthalmos.

CASE 3.—A female, aged 50, ill for more than seven years with Graves's disease. Exophthalmos was marked; she complained principally of being awakened at night by attacks of breathlessness. She could not walk at all for the same reason. Her thyroid was enlarged. Radium treatment was begun in July, 1913, as a rule screened by silver. In one month's time she had received 350 mg. hours. In six weeks' time the patient showed considerable improvement; she could walk slowly for some distance (down to the shore and back, a distance of a mile altogether), whereas she had previously been confined to bed, but her principal relief was that she had quite lost the distressing night attacks of breathlessness.

CASE 4.—A male, aged 53; duration of Graves's disease four years with intermissions. The patient was very ill with a weak, irregular heart, dropsy of the legs, marked exophthalmos, and enlargement of the thyroid. He was put on digitalis and given a dose of 180 mg. hours of radium in one week. This was in August, 1913. After the treatment the patient went into the country, but is being kept under observation. His son wrote recently to say that the patient was improving. The thyroid is much diminished in size.

So much for the clinical evidence at my disposal. The case would be more complete if sections of a thyroid which had been exposed to radium rays could be examined, as has been done by Dr. Murray in the case of the X rays. But there is plenty of evidence available as regards its general action on normal and pathological tissues. Thus in nævi the effect is to obliterate the small blood vessels, and in malignant growths to induce a fibrosis. Professor Oscar Hertwig, of Berlin, in a paper contributed to the recent International Congress of Medicine, said that radioactive bodies had a powerful influence on vital processes in plants and animals. The theory at first held that lecithin was the body acted on had been given up, and the microscope had shown that it was the nuclear substance that reacted to the rays. In experiments on rana fusca it was found that if the spermatozoa were acted on by small doses of rays, though they did not show any perceptible alteration in structure, yet when they impregnated the ova they caused an alteration in the development of the ova so as to produce monsters, which he termed "radium larvæ." This effect was produced by the rays acting on the nuclear substance of the head of the sperm cell. Many experiments with radium on different tissues showed that while full grown and differentiated cells and tissues were comparatively little affected, on the contrary, embryonic cells and others which in adults lingered in an undifferentiated state, especially generative cells, young nerve cells, leucocytes and tumour cells in a state of growth, were especially sensitive. Blood and lymph of man, and the hæmatopoietic organs connected with them, were especially altered by radioactive bodies. Microscopically a great diminution in the white corpuscles was observed, caused on the one hand by wholesale disintegration, and on the other by diminution in replenishment.

With regard to the effect on the nervous tissue, Sir Victor Horsley and Dr. N. S. Finzi carried out a research into the action of filtered radium rays on the brain (British Medical Association Meeting, July, 1911). Histologically the meninges were infiltrated with blood, and the blood vessels showed such proliferation of their endothelium that in some cases they were practically occluded. There was also a considerable formation of fibrous tissue, which extended into the cortex and along the sulci. Further, there occurred wedge shaped thrombotic areas in the cortex. The only microscopical change discovered in the nerve cells apart from these thrombotic areas was a condition of hyperchromatosis in the cells of the region of the cortex in which the hæmorrhages had occurred. Examined by the Marchi method there was some degeneration of the pyramidal fibres as well as of some fibres in the brain proceeding from the hæmorrhagic area. It appears, then, that the most constant histological changes found in nervous tissue after the application of sufficient doses of radium are vascular ones. It is probable, then, that the effect of radium rays on the thyroid gland is to diminish the vascularity of the gland, to cause a diminution in the leucocytes, and an over growth in the connective tissue. By these processes the functional activity is lessened, the hypersecretion checked, and the morbid phenomena consequent thereon diminished.

Edinburgh.

THE TREATMENT OF UMBILICAL HERNIA IN CHILDREN BY THE SUBCUTANEOUS ELASTIC LIGATURE.

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THERE are certain well recognised methods of dealing with the small umbilical protrusion so common in infants. It is correctly taught that the condition is one with a strong natural tendency towards spontaneous cure and the simple mechanical aids of a pad or inversion of the abdominal wall over the umbilicus are employed to hasten the closure of the sac. While this line of treatment is often satisfactory and in its simplicity has much to recommend it, yet there are at least two disadvantages from which it suffers. The first disadvantage depends upon the degree of uncertainty which surrounds the prospect of an early cure when a pad or skin inversion is used; the case must be watched most thoroughly and conscientiously—some carelessness and a single protrusion of the sac will undo the benefit of months of treatment [illegible] of time dur[illegible] least six mo[illegible] sometimes tw[illegible] longed treatment becomes intolerably irksome.

Considerations such as these led me to debate the possibility of employing some method which was free from these disadvantages. Last year Brun[1] published a paper in which he drew attention to the advantages of the elastic ligature in the treatment of umbilical hernia in children. It is this method somewhat modified which I have employed and found so useful.

Suitable cases.—The operation is not performed upon children below the age of 6 months, and in the majority of cases it is of advantage to wait until the child is 1 year old. During the pre operation period the application of a pad or of inversion may be practised, and if cure results without operation so much the better. The size of the opening in the abdominal wall is considered in judging the suitability of the case. A large opening is unsuitable for operation by this method, as there is later a tendency to recurrence. The rough guide which one uses is the tip of the little finger—an opening which is large enough to admit this is considered unsuitable. It is essential that the sac be empty; irreducible contents of any description whatsoever must be looked upon as an absolute contra-indication to the operation. As long as the opening in the parietes is suitable the size of the sac need not be taken into consideration.

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[1] Brun, V.: Archives de Méd. des Enf., Paris, September, 1912.

The operation.—The method has been practised upon 21 patients. The procedure does not occupy more than a couple of minutes in the accomplishment and the after-treatment is of the most simple description. The preliminary treatment consists in a thorough evacuation of the bowels and the reduction of flatulence by suitable dietary before operation. A few simple instruments are required in the shape of a knife, dissecting forceps, and a blunt dissector. The essential material is a piece of elastic cord one-eighth of an inch in diameter and about 3 inches long. The actual technique of the operation is as follows: The skin over the fundus of the protrusion is grasped with a pair of dissecting forceps, and skin and sac are pulled gently upwards from the abdominal wall. Great care is exercised in ascertaining that the contents of the sac are completely reduced. Three small incisions are made at equal intervals around the periphery of the sac, at the point where the skin is reflected on to the abdominal wall. (Fig. 1.) These incisions penetrate the skin and subcutaneous tissues, but they must not injure the sac. With a blunt dissector it is now possible to undermine the tissues around the pedicle of the sac—the three radiatory incisions facilitate the performance of this. The elastic ligature is now pulled beneath the skin, following the track of separation. (Fig. 2) This is most conveniently done by means of an artery forceps, which pulls the ligature from one incision to another around the periphery. When the ligature is in position the operator, having satisfied himself that the sac is empty, pulls the ligature as tightly as possible around the pedicle of the sac and fastens it so with a stout piece of silk. The ends of the elastic ligature are left protruding through one of the incisions, and they are cut to a convenient length; a simple dressing is applied and kept in position by means of a band of adhesive plaster.

FIG. 1.

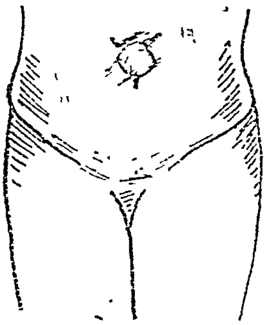

FIG. 2.

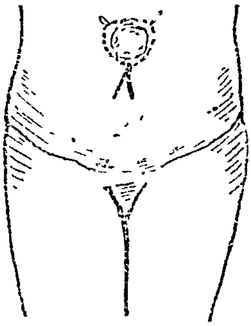

FIG. 1.—S sions round the hernia.
FIG. 2.— The elastic ligature is
lying i more closely round the
pedicle of the sac.

After-treatment.—The ligature is allowed to remain in position for six days and then removed by cutting the silk knot. The opening which it leaves quickly closes. This early removal of the ligature differs from the method employed by Nota, of Turin, as described by Brun. Nota does not remove the ligature but allows it to slough out, which it does usually about the twelfth day. An early removal is to be preferred; it does in no way jeopardise the ultimate result, and it is a much more aseptic proceeding. A dressing is worn until the wounds are healed. No further application is made.

Result.—One can only say that the results have been uniformly successful. The first case operated on was one which demonstrated the permanency of the cure. About two days after operation the child developed whooping-cough, but in spite of persistent coughing and straining there was no recurrence of the protrusion.

Advantages of the operation.—These may be summarised as follows. 1. The operation is essentially of the most simple type. 2. The after-treatment is brief and satisfactory. 3. The cure is apparently a permanent one.

Edinburgh.

UNIVERSITY OF LEEDS.—The address at the opening of the next session of the School of Medicine will be given on Oct. 1st by Professor C. S. Sherrington.

A NOTE ON HELMINTHIASIS IN BASSA PROVINCE, NORTHERN NIGERIA.

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WEST AFRICAN MEDICAL STAFF.

BASSA Province is situated in the south-east corner of Northern Nigeria, bordering on Southern Nigeria to the south, bounded on the west by the river Niger, on the north by the river Benue, and on the east by Muri Province. Almost the whole province is characterised by extremely thick *kurimi*, or bush, in many places so dense as to be practically impenetrable, and it is intersected by several small rivers and streams, the most important being the Amara, the Uge, the Urito, the Okura, and the Mabolo. The resulting climate is therefore, on the whole, damp and equable. For 1909 and 1910 the maximum relative humidity was 85 and 86 respectively, the minimum 67 and 64; during the early part of this year—when the following observations were made—the rainfall was much below the average, and the relative humidity fell on one occasion to 18. The mean maximum temperature for the year is as a rule about 90° F., the mean minimum about 63°.

The people.—The natives consist mainly of pagan tribes, Igarras, Ndomas, and Bassa Comos, but there are several smaller tribes and some isolated communities of Mohamedan Hausas from the north. Ankpa, the chief European station, is in the midst of the Igarras. While I was stationed in the province some few of the prisoners exhibited symptoms of anæmia and debility, associated in some cases with œdema of the feet and legs, and even ascites, and with indefinable

TABLE I.—*Showing the Ova found in 30 Cases.*

No.	Tribe.	Ova found.	Remarks.
1	Bassengo.	*Nil.*	—
2	,,	Ankylostomum.	Health good.
3	Igarra.	*Nil.*	—
4	,,	Trichuris trichiura.	—
5	,,	Ankylostomum; ascaris.	Health good.
6	,,	*Nil.*	—
7	,,	,,	—
8	,,	Ankylostomum; ascaris.	Had a slight attack of amœbic dysentery; health otherwise good.
9	,,	Ankylostomum; ascaris.	"Craw-craw." General health good.
10	,,	*Nil.*	—
11	,,	,,	—
12	,,	,,	—
13	,,	,,	—
14	,,	Ankylostomum.	Health good.
15	,,	,,	Health fair.
16	Okpoto	,,	Œdema of feet and legs.
17	,,	Tænia solium.	—
18	,,	Ankylostomum.	Pains in legs, œdema, and hyperæsthesia over tibiæ.
19	,,	Ankylostomum; ascaris; trichuris trichiura.	Intense œdema, ascites, cardiac failure, death.
20	,,	Ankylostomum.	Health fair, but some slight œdema of feet.
21	Agatu.	*Nil.*	—
22	,,	,,	—
23	Yoruba.	Ankylostomum; ascaris.	"Craw-craw." Œdema of feet and legs.
24	,,	Tænia solium.	—
25	Hausa.	Tænia solium; ankylostomum.	Health good.
26	,,	Trichuris trichiura.	—
27	,,	Ankylostomum.	Health good.
28	Beri-beri.	Tænia solium; ascaris.	—
29	Kakanda.	Ankylostomum.	Health good.
30	Bagarini.	*Nil.*	—

pains in the joints and down the legs, and occasionally hyperæsthesia over the tibiæ The signs in one or two cases seemed to point to beri beri, in others to ankylostomiasis. However, the majority of the prisoners appeared to be in good health

The stools —I was led to examine the stools for helminthic infection, which I did in 30 cases taken at random (Table I)

TABLE II —*Showing Results of Examination of the Blood*

Number	Polymorpho nuclears	Eosino-philes.	Large mono nuclears	Small mono-nuclears	Mast cells.	Myelocytes.	Hæmo-globin
2	24	36	4	36	—	—	60
3	51	16	6	27	—	—	60
4	57	4	1	38	—	—	50
5	68	18	3	21	—	—	50
6	64	9	6	30	1	—	70
7	22	42	6	30	—	—	60
8	32	35	5	28	—	—	60
9	67	11	15	16	—	1	60
10	31	40	7	22	—	—	65
11	28	56	3	13	—	—	60
12	42	30	1	27	—	—	70
13	36	16	20	26	—	2	80
14	62	6	7	25	—	—	60
16	74	3	4	19	—	—	40
17	43	28	7	22	—	—	70
18	60	3	3	34	—	—	60
21	46	12	6	34	2	—	60
22	64	5	3	28	—	—	60
23	47	19	6	27	—	1	60
24	28	21	3	48	—	—	55
25	57	16	7	18	2	—	60
26	29	17	12	42	—	—	—
27	30	30	10	28	1	1	70
28	26	34	4	36	—	—	50
29	44	15	11	28	2	—	60
30	35	29	6	30	—	—	70

In these 30 cases I found —

Single infection in 12, 40%
Double „ „ 6, 20%
Triple infection in 1, 3 3%
No infection „ 11, 36 6%

The ova found were as follows:—

Ankylostome (or necator) in 14, 46 6%
Ascaris lumbricoides „ 6, 20%
Tænia solium in 4, 13 3%
Trichuris trichiura in 3 10%

Examination after the administration of anthelmintics proved the presence of both ankylostome and necator Table I shows the results in more detail

The blood —I then proceeded to examine the blood of the same cases, except of four who were not available The most noticeable feature was eosinophilia, which was present in almost every case (see Table II), rising in one case as high as 56 per cent This was seen not only in cases with ankylostome infection, but with other helminths, T. solium, ascaris, T trichiura

In some cases I believe it was due to skin diseases, probably parasitic, collectively termed "craw craw" by the patients These lesions usually commence as exceedingly irritable papular eruptions, beginning on the thighs or scrotum, sometimes on the arms, often becoming pustular from scratching and often spreading on to the trunk Wyler[1] suggests that the eruption on the thighs and buttocks is really the seat of infection with ankylostomes owing to the native habit of squatting on the ground

In other cases the eosinophilia had no obvious cause, but I believe further search in the stools might have shown ova Many cases showed great relative increase in the lymphocytes, possibly attributable to a preceding infection with malaria Two cases showed malarial parasites, and two showed microfilariae—one M. bancrofti, the other loa loa and M perstans

A rough hæmoglobin estimation showed the following results (see Table II) —

1 had 40% hæmoglobin
3 „ 50% „
1 „ 55% „
13 „ 60% „
1 had 65% hæmoglobin.
5 „ 70% „
1 „ 80% „

The case showing only 40 per cent had a large abscess in addition to ankylostome infection

Treatment —The treatment first adopted was 6 drachms of the eucalyptus, castor oil, and chloroform mixture in the early morning, repeated after an hour and a half, the double dose being again given three days later This seemed quite inefficient, and better results attended the administration of thymol in divided doses As I was shortly afterwards transferred from the station I was unable to observe the effects of treatment on the general health of the patients

Remarks —The above observations, though limited to 30 cases, would serve to show the extreme prevalence of infection with ankylostomes amongst the Bassa pagans The Hausas seemed to me to be much less affected, though this could not be observed amongst the prisoners, of whom very few were Hausas One reason for their comparative immunity appears to be their use of deep cement lined pits for defæcation, whereas the pagan tribes make use of the nearest convenient spot in the bush, thus providing the ankylostome ovum with its most favourable conditions for development

Ankylostomiasis probably has a distinct bearing on the fact that Hausa carriers are able to carry heavier loads for far greater distances than can pagans A remarkable point was the absence of symptoms in many cases that showed infection and even considerable anæmia The men were able to do their ordinary work which was certainly not as a rule heavy, without complaining even of shortness of breath, in other words, infection with ankylostomes is not synonymous with ankylostomiasis

Conran[2] states that all his cases complained first of epigastric pain, but this was uncommon in my series, the earliest symptoms seemed to be dyspnœa and dizziness, especially in a bright light, and these were followed by pains in the legs, œdema, and the ordinary symptoms of ankylostomiasis Several of these cases were extremely like cases of beri beri, and in some of these ankylostome ova were not found till the second or even third examination, and after the administration of a mild purge The diagnosis between these two diseases, usually said to be easy, may in actual practice be a matter of considerable difficulty

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SUPPURATING ENDOTHELIOMA OF MECKEL'S DIVERTICULUM SIMULATING APPENDICITIS

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MECKEL'S diverticulum is very rarely found in mammals with the exception of man, but is constantly represented in certain birds The London museums contain about 100 specimens from the human species, half of which were obtained from post-mortem examinations, about one third had caused obstruction during life, a few had caused intussusception, and only three were the seat of inflammation

Very few cases of inflammation of Meckel's diverticulum are to be found in literature; those simulating appendicitis could be counted on the fingers of one hand, and the presence resembling an absce s of the In other cases in which there has been usually due to torsion, perforation, or the presence of foreign bodies

A woman, aged 38, was admitted under my care in 1910 for supposed appendicitis Following weakness of a few weeks' duration she had sudden sharp pain in the right

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of
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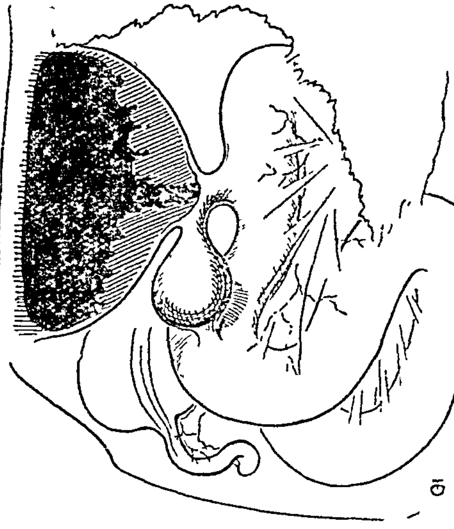
[2] A Report on Ankylostomiasis in the North Nyasa District by P C. Conran, Journal of Tropical Medicine and Hygiene July 1st 1913

abdomen two days before admission, with cold shivers. There had been some indefinite trouble with the bowels about 12 years before. On admission her temperature was 101° F. and the pulse 120; the abdomen was distended and very tender on the right side, where a soft swelling could be felt. Operation was as follows. A median incision was made. Free fluid was present in the peritoneum, serous generally, but puriform in the right loin. The bowel was then examined and a gangrenous broken-down mass was found, originating in a Meckel's diverticulum, and necessitating the resection of 15 inches of the small intestine. The appendix was normal. The patient remains well.

The specimen (see figure) is preserved in the museum of the Bristol Royal Infirmary, and Professor I. Walker Hall gave the following microscopical report which he has subsequently confirmed: "Sections taken from separate parts of the tumour show masses of endothelioid cells and dilated blood sinuses, adult in type. The lesion is therefore a hæmendothelioma."



The abdomen contained free fluid, with localised stinking pus in the right loin. The appendix was normal. The omentum formed a hood adherent over the mass, and is represented as having been partly cut away to show the structures beneath it. (Surgical Specimen No. 522, Museum, Bristol Royal Infirmary.)

Although the instances are so few in which inflammation of Meckel's diverticulum may simulate appendicitis, yet this should be borne in mind; and it may be of interest to append references to such recorded cases, grouping them together.

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Clifton, Bristol.

INDICATIONS FOR OPERATION ON CEREBRAL TUMOUR FROM THE POINT OF VIEW OF THE OPHTHALMIC SURGEON.[1]

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OPHTHALMIC SURGEON TO, AND LECTURER ON OPHTHALMOLOGY AT, ST. MARY'S HOSPITAL, ETC.

I FEEL that my intrusion in the discussion on indications for operation in cerebral tumours demands some apology, but there are one or two aspects of it where the opinion of the ophthalmic surgeon may become requisite, and with those alone I shall deal as briefly as possible. His opinion may be asked firstly as to whether operation is necessary in a particular case to prevent loss of sight, or whether operation will be of any avail in procuring any recovery when vision has already failed or begun to fail. If the tumour can be definitely localised, the sooner operation, either palliative or radical, is done the better, not only for the sight but also for the life of the patient. But if the position of the tumour has not been determined, and if marked papillœdema is present, it becomes the duty of the ophthalmic surgeon to give his opinion as to whether a palliative operation must be performed to save sight, and, if so, when it must be performed. In other words, he must be prepared to say what delay may be allowed in the hope of definite localising signs manifesting themselves without serious risk to the sight of the patient. In attempting to give an answer to this question I must briefly refer to some of the pathological features of tumour papillœdema.

In the early stages of tumour development, if the tumour itself is not directly pressing on the chiasma or on one or other of the optic nerves, the increased pressure in the chiasmal neighbourhood is probably mainly a fluid pressure; at any rate, it is not sufficient to interfere with the normal conduction of nerve impulses from the retina, except possibly in a temporary way. We do get fleeting attacks of blurred vision or possibly, according to Cushing and Bordley, temporary dyschromatopsia, but there is no definite diminution of visual acuity and no obvious loss of peripheral field. In the optic disc at this stage the principal changes seen are due to the œdematous fluid filling up and squeezing apart the meshwork formed by the interlacing of the nerve fibres and the fibres of the pars choroidalis of the lamina cribrosa. There is as yet no degeneration of the nerve fibres and no increase in the connective tissue elements in the disc. If at any time while this stage persists intracranial tension be restored to the normal level, there will be a restoration to the normal condition of all these affected tissues, and no trace may be left to show that they have ever been affected. Even where the œdema has been so great as to overflow the disc neighbourhood and run along the fibres of the papillo-macular bundle and give rise to a macular fan, complete restoration of normal appearances may take place on relief of pressure, and I have seen such cases 12 months after operation in which it was almost impossible for any candid observer to say that there had ever been optic neuritis.

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[1] A paper read at a combined meeting of the Sections of Neurology and Surgery at the International Congress of Medicine, London, 1913.

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fluid pressure becomes replaced by a more solid pressure We know that as the tumour develops the convolutions become flattened, the medulla is forced down into the foramen magnum as a pressure cone, and similarly the frontal lobes and temporo-sphenoidal lobes are forced *on to* the optic nerve, and, as Behr and Saenger have shown, the dural fold that overlaps the optic nerve may actually leave its impress on its surface. At the same time the distended floor of the third ventricle may be pressing down on to the chiasma. If this more solid type of pressure is prolonged or if the tumour itself grows so as to press directly on the optic nerve, then the papillœdema may subside and a descending or pressure atrophy take its place, and so you may get the seeming contradiction of a descending atrophy appearing in a disc which has been definitely affected by optic neuritis. And it is a point worthy of consideration whether the early onset of optic atrophy in cerebellar tumours is not in many cases brought about in this way.

When we turn to the disc itself we find that if the œdema [illegible] inevitably follow. The stretched [illegible] forced out of their usual course [illegible] fluid, begin to show moniliform swellings, and here and there these swellings increase and the constituent fibrillæ break up and cytoid bodies are formed which ultimately underg [illegible] lial cells at the crest of [illegible] if these degenerative ar [illegible] to proceed no subsequent relief of pressure will benefit vision. Indeed, in these cases the visual failure may progress even after pressure is relieved, for the subsequent cicatricial contraction of the newly formed neuroglial tissue causes a further atrophy of any nerve tissue that is still functional at the time of operation. The visual loss that is due to direct pressure on the nerves intracranially may be recovered from if operation is undertaken before much pressure atrophy has developed. Visual loss that is due to [illegible] disc itself may, and probably [illegible] operation. So long only as the [illegible] visual loss and without [illegible] is it justifiable to delay [illegible]

The second point to which I wish to refer briefly is whether in the present state of our knowledge we can place any reliance on a difference in the amount of papillœdema in the two eyes as a valuable factor in the localisation of the tumour. I hold very strongly the opinion that we cannot do so My own published statistics are based on 102 cases where the position of the tumour had been definitely ascertained by operation or necropsy, and where there were no signs of atrophy or subsidence in either disc. In 54 of these cases the swelling was either equal or the difference did not amount to more than 0·5 D. In 25 the swelling was greatest in the eye on the side of the tumour, and in 23 it was greatest in the eye of the opposite side. Time will not permit me to go into further details about these cases which have already been published I hope in the course of a few months to be able to give detailed statistics of another large series of [illegible] the last set was published [illegible] last year Uhthoff gave the [illegible] summation of his own cases and cases collected from the literature. In the case of supratentorial tumours he found that one-sided choked disc occurred in 56 per cent of cases on the side of the tumour, and in 44 per cent. of cases on the opposite side If the disc changes were not marked enough to be called "choked disc"—i e , less than 2 D. of swelling—the proportion was more in favour of the side of the tumour, 75 per cent., and 25 per cent on the opposite side. When there was choked disc on both sides, but more marked on one side than the other, it was in 73 per cent. greater on the side of the tumour, and in 27 per cent greater on the opposite side. When there was optic atrophy on one side and papillœdema on the other side the tumour was invariably on the atrophic side When the papillœdema took on a hæmorrhagic character it was as often more marked on the contralateral side as on the same side. As regards cerebellar tumours, he points out that one-sided optic neuritis is very rare. When Rothmann used in [illegible] cerebellar tumours: [illegible] ist die [illegible] lung der [illegible] ft genug kommt sie zuers [illegible] enden S[illegible] or strong [illegible] absolutel [illegible] first seen in the opposite [illegible] cerebellum," Now I would [illegible] tumours generally, and say [illegible] that the papillœdema either first shows itself or is more strongly marked in the [illegible] as a valuable localising si [illegible] atrophy in one eye and [illegible] of very great value, and [illegible] atrophy side pressing directly on the nerve. But until we [illegible] any difference [illegible] the two discs [illegible]

Harley street, W.

AN UNUSUAL CASE OF CEREBRAL ABSCESS.

BY HAROLD F RENTON, M.D , B.S. LOND.,
M R C.S ENG., L R C P. LOND.,

SENIOR ASSISTANT MEDICAL OFFICER, BRADFORD UNION HOSPITAL.

THE patient, a male aged 41, was admitted to the Bradford Union Hospital on April 25th, 1913, in a comatose condition. The history of his illness was difficult to obtain, but he was said to have been treated by a medical man for influenza over a period of seven days. An examination of the patient revealed the following. He was comatose and was bathed in a profuse sweat. His cheeks were flushed, and his pulse full and bounding. The pupils were equal, of medium size, and reacting sluggishly to light; there was no squint and no optic neuritis There was marked facial asymmetry, the left side showing partial or supranuclear palsy of the seventh nerve. There was no retraction of the head. The limbs of the left side were more flaccid than those of the right but the reflexes were normal and equal on both sides The plantar reflex was flexor in type on either side. The abdominal reflexes were not obtained. The heart was not enlarged and there were no murmurs, the sounds being forcible and steady. The chest was full of moist sounds, but there was no abnormal dulness There was no wound of the skull, and no discharge from the ears or nose. The temperature taken in the left axilla was 101 6° F, and in the right axilla 100 4°. A catheter was passed, but no urine was withdrawn. During this operation the patient moved his right arm and leg, but the limbs of the left side remained immobile.

A diagnosis of hæmorrhage into the right side of the brain was made and the usual treatment carried out. Re-examination of the patient on April 26th showed that the left pupil was smaller than the right, and that the left nostril moved during respiration, the right one being apparently immobile. The patient was able to move his left arm and leg, but not to any marked extent. He attempted to speak, but the sounds he made were incoherent. Towards night he took a little milk. On the 27th he was quite unconscious. The temperature as shown by the four-hourly chart was hectic in character, and the patient was bathed in a profuse sweat. It was quite natural to conclude from these details that the original diagnosis of cerebral hæmorrhage was incorrect, and that the patient was really suffering from a purulent affection of the brain, the nature and situation of which were certainly not clear. Later in the day the nurse in charge of the case reported the presence of a foul greenish discharge which "came into the mouth," and necessitated frequent removal. The discharge was very free, and it was impossible to determine by what path it reached the mouth. The chest was carefully examined for the possible presence of an empyema, but without success; and an examination of the ears and nose, somewhat difficult under the circumstances, revealed no disease. The patient died the same evening.

Necropsy.—The results of the post-mortem examination were as follows. The heart, kidneys, and spleen were normal. The lungs were congested and the bronchi contained a quantity of mucus. There was no empyema. A search was made for signs of suppuration in the pharynx and tissues of the neck, but without success, nor was there any evidence pointing to disease of the air sinuses of the face. There was, however, a perforation in the left tympanic membrane which had not been seen during life, and through which a drop of pus had exuded. The calvarium was normal. The brain, however, showed extensive disease. There was a large abscess in the left temporal lobe, communicating with the lateral ventricle. The walls of the abscess were roughened and firm, and enclosed a small quanity of pus possessing the same odour and appearance as that of the discharge which was noticed in the patient's mouth shortly before death. Below, the abscess communicated with the left middle ear through the petrous portion of the temporal bone. The communication was very large, measuring a quarter of an inch across, and it was found possible to pass a probe through the outer ear into the skull by way of the aperture in the petrous portion of the temporal bone without encountering any resistance. Over the motor area on the right side of the brain there was extensive purulent meningitis, but the left cortex was unaffected. There was some plastic exudate upon the base of the brain, but no pus. There was no sign of disease of the right ear or of the right temporal bone. The presence of the meningitis upon the right motor area was sufficient to explain the paralysis of the lower half of the left side of the face and of the paresis of the left arm and leg.

Remarks.—This case would seem to be of interest for two reasons. 1. In the first place, there can be no doubt that the meningitis upon the right side of the brain was due to the spread of infection from the left petrous bone, yet the base of the brain was very little affected, and the surface of the left cerebral hemisphere not at all. One would have thought at least that those areas nearest to the primary infection would have been the first to be affected during the spread of the disease. Moreover, the few focal symptoms shown by the patient during life were sufficient to warrant a diagnosis of disease of the right side of the brain, such disease being proved post mortem, yet there was nothing to suggest the presence of the cerebral abscess. 2. In the second place, the unusual termination of the cerebral abscess deserves attention. It will be remembered that shortly before death a large quantity of foul-smelling matter appeared in the mouth and that its origin was uncertain. A close examination of the mouth and sinuses of the face post mortem failed to disclose any disease, nor was there any sign of suppuration in the tissues of the pharynx or neck. There can be little doubt that the discharge consisted of the contents of the cerebral abscess, which was shown to be almost empty post mortem. The path taken by the pus in the passage from the brain to the mouth was not very obvious, and it was difficult to explain why no escape was made by way of the external ear, which did not present any obstacle. It was an easy matter, however, for the discharge to reach the middle ear through the aperture in the petrous portion of the temporal bone, and the view is held that it eventually entered the mouth by way of the Eustachian tube, which would seem to have been the only available course. It is well known that a brain abscess associated with middle ear disease may discharge itself through the external ear, but the more ordinary text-books do not mention such a path as appears to have been taken by the pus in the case under discussion. Such a termination of a cerebral abscess is sufficiently rare to justify more than a passing interest, though possibly similar and unreported cases have been noted from time to time by surgeons whose domain is limited to the ear and its adnexa.

Bradford.

Charing Cross Hospital Medical School.—Lady Wantage has kindly consented to distribute the prizes at the opening session on Oct. 1st, which will take place in the hospital out-patient department at 3.30 p.m., when the Dean, Dr. William Hunter, will deliver an address on University Medical Education. The annual dinner will take place the same evening at the Adelaide Gallery at 7 for 7.30, with Mr. H. F. Waterhouse, F.R.C.S., in the chair.

A CASE OF

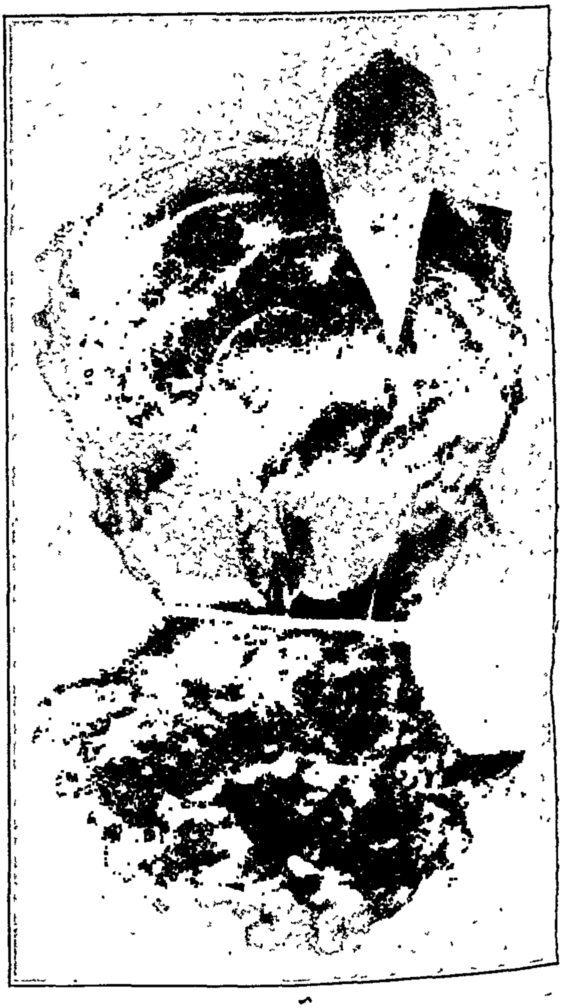
ADVANCED CARCINOMA OF THE CERVIX UTERI CONTAINING TWINS

TREATED BY VAGINAL HYSTERECTOMY.

By H. B. MYLVAGANAM, F.R.C.S. Eng.,
SURGEON TO THE VICTORIA HOSPITAL, BANGALORE.

It is not often that one sees a case of carcinoma of the cervix uteri, with the cervix eaten up and bleeding profusely, to be pregnant at the same time with twins. Such a unique case came under my observation last year at the Victoria Hospital, Bangalore.

Pregnancy in a fibroid uterus has been recorded from time to time, and there seems to be nothing unfavourable for pregnancy to take place so long as the myoma is small in size and is of the intramural or subperitoneal type. In the submucous variety the hæmorrhage is so profuse and the uterine cavity is so much distorted that an impregnated ovum is not likely to find a congenial abode in the uterine cavity to undergo development. In a case of carcinoma of the body of the uterus the conditions are unfavourable for pregnancy. But in the case of carcinoma of the cervix the body of the uterus is free, and when once the spermatozoon finds its entrance inside the uterus there is no difficulty for pregnancy to take place. The spermatozoon in this case must have had sufficient vitality to withstand the destructive influence of the discharge from the cancer. The following is a brief history of the case.



Reproduction of a photograph of the parts removed.

The patient, a married Hindu Brahmin, aged 40 years, was admitted into the Victoria Hospital on April 28th, 1912, with a history of passing blood profusely by the vagina for the past six months without pain or any other inconvenience.

As to the gynæcological history, the patient was married in the Brahminical sense in her tenth year, which is equivalent to a betrothal, but the consummation took place after she attained the age of maturity in her fourteenth year She gave birth to six sons and two daughters, of whom two sons and two daughters have died in their infancy About 1¼ years before her admission she gave birth to her last child, who was alive for four months Menstruation appeared five months after her last confinement and continued for five days It continued regularly for three months Since then she has had sero sanguineous discharge from the vagina once in 15 or 20 days without any pain, the discharge continuing for three or four days About three months prior to her admission she passed clots of blood without pain, for which she was treated for eight days About 15 days prior to her admission she had another attack of hæmorrhage which lasted for a day only Coitus had taken place off and on since the death of her last child and she used to pass blood in small quantities on each occasion

The patient on admission was ill nourished She had lost flesh and colour since the commencement of the hæmorrhage Her appetite was good No temperature Heart and pulse were normal On vaginal examination the cervix was found ulcerated and excavated The edges of the ulcer were hard and indurated The ulcerated area was friable and bled easily The discharge was very offensive and purulent The vaginal wall was not involved On bimanual examination the body of the uterus was felt enlarged and freely movable The sacro uterine ligaments were felt to be free on rectal examination The cervix could be brought down easily with the aid of a vulsellum forceps

An operation was performed on April 29th 1912 The ulcerated area was cauterised and the whole uterus removed

or and posterior vaginal

drain was passed into

le a good recovery and was discharged from the hospital on June 8th

On cutting open the uterus (see figure) there were seen to my surprise, twins, each fœtus being enclosed in a separate amnion The idea of pregnancy never entered my mind on account of the frequent hæmorrhages The age of the fœtuses was probably 3 months

Bangalore

A CASE OF

RHEUMATIC ARTHRITIS TREATED WITH RHEUMATISM PHYLACOGEN

BY MARIAN ERSKINE L R C P & S EDIN,
L F P S GLASG,
VISITING PHYSICIAN, HOSPITAL FOR WOMEN AND CHILDREN, EDINBURGH

IN view of the comparatively recent introduction of the phylacogens into therapeutics the following case may present some points of interest

The patient, 33 years of age, was admitted into the Edinburgh Hospital for Women and Children on May 2nd,

he left

The

acute

uently

the left hip became involved

On admission the left knee was found to be greatly swollen and very painful and tender to the touch Any attempt at active or passive movement gave rise to the most intense pain The left hip was affected in a similar manner, but in a less degree Apart from the local condition, the patient's general health was fairly good and she was well nourished There was a considerable degree of constipation, but there was no evidence of bacterial infection The constipation was treated, diet was regulated, and the usual remedies were given including radiant heat and ionisation with potassium iodide, but at the end of a month's treatment there was no noticeable improvement in the symptoms Accordingly, I resolved to try the effect of rheumatism phylacogen, having heard reports of the good effects of this preparation in similar cases On May 29th I began with a subcutaneous injection of 2 c c About 12 hours after the injection the patient had a slight reaction, the temperature and pulse rose, and she felt sick and vomited a little Thereafter the injection was repeated every second day, increasing the dose each day till eventually she was receiving 10 c c The reaction after each dose was fairly severe the temperature rising to from 100° to 102° F, the pulse increasing to 115 and the patient complaining of pain in all her joints These symptoms quickly subsided, however, and after the third injection the knee was distinctly less swollen and tender, and was slightly movable This improvement steadily continued, the pain in the hip and knee gradually subsided, and on June 8th, after the sixth injection, the patient could flex and extend her leg without pain, and the swelling had practically gone On the 14th she was allowed up for the first time and found that she could walk about the ward without much difficulty On the 22nd she was discharged—walking out of hospital

Before admission the patient had not been able to walk for three months On July 14th she reported herself as having had no return of pain, swelling, or difficulty in walking, and as being quite able to undertake her daily work

The time that has elapsed since the cessation of the treatment is of course too short to preclude the return of the symptoms, but the results, in view of the failure of other remedies seem sufficiently encouraging to warrant the further trial of this preparation

Apparently also the remedy is of benefit in obstinate cases of myalgia and neuralgia This was evident in a case of sciatica in a young woman When this patient came under my care she had been suffering from an attack of three or four weeks' duration, the pain being sufficiently severe to keep her awake at nights and to render movement a matter of difficulty There was tenderness at all the nodal points of the left sciatic nerve and some fibrosis of the muscles of the left thigh and leg Ordinary remedies had failed to produce any amelioration of the symptoms The first two doses (2 c c and 3 c c) gave rise to no reaction, and had little, if any, effect on the pain, but the third injection (5 c c) was followed by a sharp rise of temperature and pulse accompanied by intense pain and swelling of the left arm and shoulder, which persisted for a couple of days The sciatic pain, however, had completely gone and this fact, combined with the discomfort of the reaction made the patient refuse further injections She remained under my observation for three weeks longer, during which time she had no return of the pain and was able to walk and run without any difficulty at all Another case of obstinate lumbago in a woman of 48 was followed by a similarly satisfactory result

Edinburgh

FOREIGN UNIVERSITY INTELLIGENCE —*Genoa* Dr Piero Boggio has been recognised as *privat docent* of Odontology —*Georgia University of (Augusta College of Medicine)* Dr R Vanderhorst Lamar has been appointed Professor of Pathological Anatomy —*Helsingfors* Dr A Erlandsen, of Copenhagen has been appointed to the chair of Hygiene in succession to the late Dr Hjelt —*Jena* Dr R Eden has been recognised as *privat docent* of Surgery —*Leyden* Dr E de Vries has been recognised as *privat docent* of Neurology —*Modena* Dr Virginio Ramazotti has been recognised as *privat docent* of Dermatology and Syphilography —*Montreal (McGill University)* Dr Campbell Geddes professor of anatomy at the Royal College of Surgeons in Ireland has been appointed to the chair of Anatomy —*Munich* Dr L von Zambusch, of Vienna, has been appointed Extraordinary Professor of Dermatology —*Palermo* Dr Vincenzo Baviera has been recognised as *privat docent* of External Pathology —*Pavia* Dr Ernesto Brugnatelli has been recognised as *privat docent* of General Pathology, and Dr Ambrogio Gradi as *privat docent* of Medicine and Medical Semeiology —*Philadelphia (Jefferson Medical College)* Dr John C Da Costa and Dr F J Kalteyer have been appointed Adjunct Professors of Medicine —*San Francisco (Leland Stanford University)* Dr Thomas Addis has been appointed Adjunct Professor of Medicine —*Stockholm* Dr J Holmgren *privat docent*, has been promoted to the Chief Physiciancy of the Medical Clinic in succession to Dr Henschen who is retiring —*Washington (University of St Louis)* Dr G Canby Robinson has been appointed Adjunct Professor of Medicine

Curtis founded the Dispensary for Diseases of the Ear, which later became the Royal Ear Hospital, for Diseases of the Ear, in 1841. ...... This hospital can, therefore, lay claim to being the oldest special hospital in existence." In a subsequent article on British Ear and Throat Clinics Historically Considered, we find that in 1804 "the London Dispensary for the Relief of the Poor Afflicted with Eye Diseases," now familiar by the name of "Moorfields," was founded by Dr. Cunningham Saunders, an aural surgeon who treated disease of the ear as well as of the eye in this institution. In 1814 Surgeon Ryall founded the "Dublin Eye and Ear Hospital." Another interesting fact brought out in this article is that the first special hospital for treatment of disease of the throat as well as that of the ear, to the exclusion of the eye, was the Metropolitan Ear, Nose, and Throat Hospital, which was founded in 1838. Such discrepancies as to priority of foundations always arise in a series of historical articles.

To the September issue Dr. D. R. Paterson contributes most opportunely an article on the Significance of the Tonsils and the Supra-tonsillar Fossa. The position of the tonsil in the animal organism has been recently the subject of a good deal of discussion. One result of the medical inspection of school children, as Dr. Paterson remarks, has been to demand more active treatment of the tonsil, if not complete removal. Discussion has been directed towards the most effective procedure for removal, whilst conservative measures, which attempted to preserve some part of the gland, have been pushed into the background. The article deals with considerations which show that the tonsils have an essential function in the body, and that treatment, designed to preserve them whole or in part so as to enable them again to fulfil it, is based on rational lines. The view that tonsils are retrogressive structures, useless and even injurious in the economy, and therefore to be pursued with "fire and sword," is founded on a misconception of their function.

The Journal of the East Africa and Uganda Natural History Society (Longmans, Green, and Co. Price 4s.) maintains its high standard of excellence both in matter and illustration. The July issue contains an excellent description by Felix Oswald, D.Sc., of the Miocene Beds of the Victoria Nyanza, with six reproductions of photographs. Mr. C. W. Woodhouse contributes a brief sketch of the people on the south-eastern slopes of Elgon (from the Kwiwa to the Muberi). The arrow has played such an important part in the early history of the world that any account of its evolution is of much interest. Mr. C. W. Hobley, who writes on this subject, deals with the arrows used by the tribes in East and Central Africa. He throws no light on the problem of how the primitive rude stone arrows could have penetrated the vital parts of a bulky beast, unless it can be accounted for by the muscular strength of the primitive man, but he calls attention to a human pelvis in the British Museum in which a flint arrow is embedded in the bone of the pelvic arch. Mr. A. R. Barlow deals with the subject of Kikwyu circumcision ceremonies, and Mr. E. Wynstone-Waters, F.R.S. Edin., late senior demonstrator of anatomy at the Royal College of Surgeons, Edinburgh, commences the first part of an article on the organic cell.

DONATIONS AND BEQUESTS.—The late Mrs. Emma James, of Eastbourne, has bequeathed £3000 to Nottingham Hospital in memory of her husband, £500 each to the Royal Hospital for Incurables, Putney, and the City of London Hospital for Diseases of the Chest; and £1000 each to the Princess Alice Memorial Hospital, Eastbourne, the Cancer Hospital, Brompton, and King Edward VII. Hospital Fund.

New Inventions.

PORTABLE APPARATUS FOR ADMINISTRATION OF SALINE SOLUTION.

HAVING felt both in hospital and in private practice the need of a simple and easily portable apparatus for the administration of saline solution at a heat suitable for any of the modes in which it may be wanted, some two years ago I discussed the requirements with Mr. W. Martindale, 10, New Cavendish-street, W., and after careful experiments the apparatus, of which the essential features are shown in Figs. 1 and 2, was produced. It is a modification of one originally used for another purpose. Its height is 14½ inches and it can either stand on a table or be suspended by a chain. The first trial apparatus has been in constant use for two years at the Hampstead Hospital, where the sisters of the surgical wards have found it work with uniform success, and recently three additional sets have been obtained for use in the wards. These have been found to work as well as the trial apparatus and they also are in constant use.

FIG. 1.

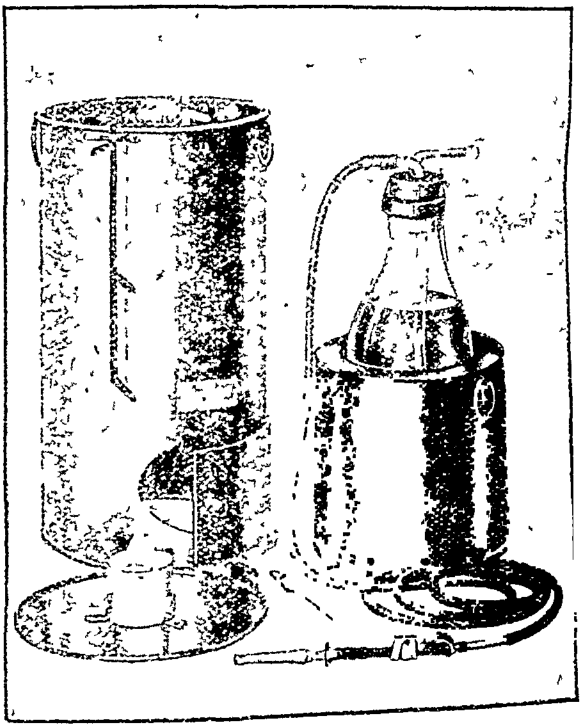
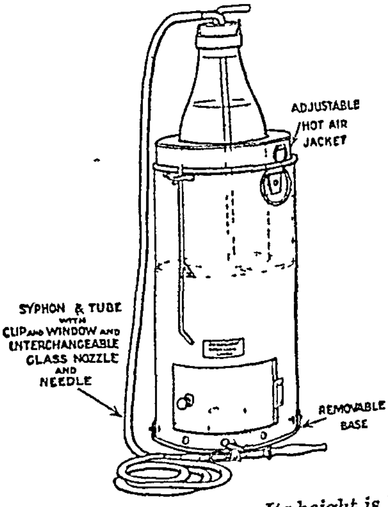


FIG. 2.


ADJUSTABLE HOT AIR JACKET
SYPHON & TUBE WITH CLIP AND WINDOW AND INTERCHANGEABLE GLASS NOZZLE AND NEEDLE
REMOVABLE BASE

J. JACKSON CLARKE, M.B. Lond., F.R.C.S. Eng.,
Senior Surgeon to the Hampstead and North-West London Hospital.
Portland place, W.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 27, 1913.

Friendly Societies and the Medical Profession.

AT the National Conference of Friendly Societies which opened in London on Thursday, Sept. 18th, under the presidency of Mr. A. H. WARREN, Past Grand Master of the Manchester Unity of Oddfellows, the most important of the debates turned upon the question of the administration of medical benefits under the National Insurance Act. Nothing new was said by anybody, and much that was very old was said by many people, but one fact came out perfectly clearly—namely, that the Conference considered that all Friendly Societies must continue to work to secure the transfer to themselves and to Approved Societies generally of the administration of these benefits. The statements of all the speakers could not be reconciled in detail. While some, for example, attributed the increase of payment made for sickness to the fact that the Friendly Societies had lost the administration of medical benefits, one speaker at least said, and gave figures in support of his words, that there had practically been no such increase in sickness claims for the first six months of 1913, and that, at any rate, the appointment of full-time referees to check any alleged excessive sickness—that is to say, to control the machinations of the malingerers—would be premature. The principle of the free choice of doctor, which was insisted upon by the Act, could be used against the institution of referees for such purposes, but this argument could hardly be employed at a meeting where the obvious feeling was that the Friendly Societies ought to be able to make their members employ medical men chosen by the officers of the different bodies. The president in his address took up the position that the fact of the medical men on the panel being severed by the National Insurance Act from association with the Friendly Societies was having serious effect upon the work of the societies, suggesting that excessive sickness claims and malingering were largely associated with the present method of the administration of medical benefits. He appeared to consider that the official inquiry now taking place into malingering would end in supporting the demand of the Friendly Societies to control the medical men upon the panels, but it was pointed out in debate that in the House of Commons, when the question was being freely discussed, only 15 members voted for the medical service instituted under the Act being placed in the hands of the Friendly Societies. It will be seen, therefore, that the Conference was not of one mind. Finally, after considering the advisability of pressing for the institution of either a State medical service or a full-time salaried medical service as "the only solution of the difficulty of providing an adequate medical service," the following resolution was unanimously passed: That action be continued to secure the transference to Approved Societies of the administration of medical benefits under the National Insurance Act. The value of the unanimity was much discounted by the speeches in favour of a regimented service, and by the admission in some quarters of the improbability that any such amendment to the Act as was demanded by the resolution would be granted by Parliament.

The Friendly Societies ought to be aware of the strength of the medical opposition to their proposed departure, as it is regrettable that these institutions, so rightly respected for much that they have done, should waste time in futile strivings. We publish in another column a report upon the working of the National Insurance Act at Hull, written on the spot by a special correspondent of THE LANCET. No one can read that report without seeing how fruitless it is for the Friendly Societies to attempt to regain over the medical profession the kind of control which they contrived to secure some 20 or more years ago. At Hull our special representative found that much which has been said since at the National Conference of Friendly Societies was the subject of general conversation among those members of the medical profession and of the public who were taking a thoughtful and personal interest in the working of the Act. It was in Hull considered possible that if the Friendly Societies suffered too much from the rivalry of other bodies, or from the altered conditions of membership, recourse would be had to the foundation of a State medical service. Such a service, which Mr. JOHN LEWINSTEIN, solicitor and clerk to the Hull Insurance Committee, described to our correspondent as an issue to existing difficulties which had to be borne in mind, formed one of the proposals which came before the National Conference of Friendly Societies, as an amendment to the resolution demanding the restoration of the control of the medical officers. It found no general favour. It was doubtful, to begin with, whether the amendment was in order, but in any case it was abundantly clear that the Friendly Societies would regard with considerable apprehension any further extension of the influence of the State in the working of the Act. The position at Hull, as described by our correspondent, thus forms an interesting commentary upon the proceedings at the National Conference of Friendly Societies, and there is every reason to suppose that the position of Hull is comparable in many ways to that existent in other large cities, though every centre of population and industry is found to have its own particular successes and failures with regard to the National Insurance Act.

And why are we so certain that the Friendly Societies can never recover their old domination of the medical profession? Why do we know that never again will an educated body of men put themselves under the thumb of these institutions, however generally useful to the State and virtuous in themselves the efforts of the Friendly Societies may be in the promotion of thrift by combination and fellow-kindness? The answer is supplied by the words of our special correspondent, which are quoted from his articles entitled "The Battle of the Clubs" published some 18 years ago. In 1894, we are reminded, the payment that an accepted calculation of this nature would be of great practical use, and its application to typical populations should give very instructive results.

THE TITLE OF THE POPE'S BODY PHYSICIAN.

MEMORABLE in all its sections for the papers contributed and discussed, the recent International Congress of Medicine and Surgery has established a famous precedent for succeeding Congresses in the department of medical history, so varied were the subjects introduced, so ably were they handled, so fresh were the facts brought to light, so interesting the conclusions arrived at. The "Epitaphial Titles of the Early Christian Physicians in the Catacombs of Rome" was the theme of the Italian delegate, Dr. Pietro Capparoni, and his treatise—for such it really was—now accessible in printed form to the lay world at home and abroad, will give a powerful stimulus to research in a branch of archæology hardly more interesting to the philologist and the theologian than to the student of social history in its relations to medicine. In the third, fourth, and fifth centuries of our era Christianity made steady progress among the cultured classes, in none more than in the practitioners of the healing art, who seem to have taken over the functions discharged by the priest in temple worship and to have consecrated them to the propagation of a purer and nobler faith. Attached to the "congregations," if such they may be called, which met for divine service, more or less clandestine, in the catacombs in and around Rome, these physicians, mostly of Greek origin and training, so endeared themselves to their *clientèle* as to earn sepulchral honours in greater number than any other members of the Christian sect—a series of memorials which Dr. Capparoni classifies: first, as taking the form of pictures ("Pitture cimiteriali"); second, of tombstones without inscriptions ("Pietre tombali anepigrafiche"); third, of tombstones with Greek, and fourth, of tombstones with Latin, inscriptions. His account of each of these has a pathos of its own, to say nothing of its religious or professional significance, forming, indeed, a sympathetic commentary on that beautiful romance of Cardinal Wiseman, "Fabiola," which, widely diffused in four continental languages, is still the most impressive illustration of the upward movement of the Christian faith from its subterranean haunts to its culmination in the spacious church and the princely basilica. Many sidelights Dr. Capparoni gives us on the organisation of medical relief in the *valetudinaria* (infirmaries) of ancient Rome, a word gradually replaced by its Greek equivalent *νοσοκομεῖα*, according as the Hellenic advance of the healing art revealed itself in the nomenclature, therapeutic and administrative, of the profession, till we come to the title assumed by its head when attached to the person of the supreme ruler of the State and thereafter to that of the supreme pontiff himself. Archiatrus, or *ἀρχίατρος*, the title in question, Dr. Capparoni finds first officially bestowed upon Andromachus, as body physician of Nero, though previously it served as an honorary appellation of any eminent consultant. Galen, indeed, applies it to Andromachus as to other high-placed physicians, but, as a Greek coinage, it did not pass into Latin usage till comparatively late, and then only to distinguish the body physician attached to the Imperial Court. Up to the Constantinian epoch it was thus restricted, and thereafter it appears in the form "Archiatrus Sacri Palatii." By this time its possessor enjoyed great privileges, as well as immunities. He might assume the style of Count of the first and of the second order, and aspire to superior posts, even to that of proconsul and of prefect of the praetorium. In addition to these, the Archiatrus Sacri Palatii was clothed with judicial authority in settling disputed points in medical etiquette and in delegating to subordinates, also called Archiatri, the control of municipal practice so as to secure medical treatment to all the inhabitants of the two imperial cities, Byzantium and Rome. Of these latter functionaries, there was one for each of the 14 *regiones* of Rome and one for each of the seven of Byzantium. For his maintenance each could draw upon the "annona militaris," while not only he himself, but his wife and children were exempted from the payment of taxes. He had, in consideration of these privileges, to provide for the gratuitous treatment of the poorer citizens, and to instruct in the healing art those sons of poor freedmen who aspired to a medical career. In immediate dependence on the prefect of the city, this type of archiatrus was chosen by him for preferment to a vacant post, being appointed to it from among other candidates when there was an absolute majority of votes in his favour—votes given by his colleagues assembled by the prefect *ad hoc*. Even then the appointment was not ratified till after special approval by the emperor. Once installed, he was prohibited from accepting promises or bequests from patients *in extremis*. Besides the 14 "Archiatri regionales" in Rome, two others bore the title—to wit, the physician of the Vestal Virgins and the physician attached to the Porticus Xysti. Gradually, as the empire of the west and that of the east declined, and with them the institutions, civic and professional, peculiar to their organisation, the title died out with the system under which it had originated and developed; till, in Rome itself, the assumption of the Temporal Power by the pontificate made the Pope a king as well as supreme pontiff, and the physician attached to his person remained the only representative of the "Archiatrus Sacri Palatii," dating from imperial times. A note in these columns last week showed that in the Middle Ages the appointment as a personal one had already lapsed, and no medical consultant in city or suburb, or indeed throughout Italy, now takes the title—relic and reminiscence as it is of a post of which the wearer of the Triple Crown is but the restricted inheritor. Such is the history of the word "archiatra," traced with a sure-footed *indagatio* by Dr. Capparoni, and illustrated, in its earlier *stages*, by a series of sepulchral inscriptions, in the deciphering and interpretation of which he is a recognised authority.

TREATMENT OF AMŒBIC DYSENTERY BY IPECACUANHA ENEMATA.

THE value of ipecacuanha in amœbic dysentery is borne out by the remarkable success of the treatment by subcutaneous injections of its active principle emetine, introduced by Professor Leonard Rogers, of Calcutta.[1] At a meeting of the Société Médicale des Hôpitaux of Paris on July 25th M. Maurin reported a case in which he obtained rapid cure from ipecacuanha in enemata. It is curious that though ipecacuanha has been long used in dysentery, and though amœbicidal drugs, such as quinine, permanganate of potassium, and nitrate of silver have also been much used in the form of enemata, ipecacuanha does not appear to have been previously used in this manner, or if it has the use has been limited to a few cases. In the case now reported the patient was a man, aged 25 years, who was admitted into the Hotel Dieu of Clermont-Ferrand on April 12th, 1913, suffering from dysentery which began at the end of the previous December. He was passing daily 15 to 20 sanguineous and glairy stools. He had been treated without effect by dieting and administration of sodium sulphate. He had spent two years at Saigon in an infantry regiment, but did not suffer there from diarrhœa, fever, or any affection of the liver. Two months after returning to France the dysentery began. On admission he weighed only 64 kilogrammes, and he had lost 12 kilogrammes since the beginning of his illness. Pressure over the descending colon was very painful. A diet of milk and soups and a draught containing 6 grammes of bismuth and 20 drops of laudanum, and an enema consisting of a decoction of 4 grammes of ipecacuanha in 200 grammes of water were given daily. On April 19th, the fourth day of this treatment, the stools, though of the same character as before, fell in number to five in the 24 hours, and the distressing tenesmus was no longer present. On the 21st the patient passed for the first time in five months a "fæcal stool" consisting of brownish fluid matter and also a small glairy stool. On the 22nd and 23rd a single diarrhœic stool streaked with mucus was passed. The draughts were discontinued. On the 24th and 25th there was absolute constipation. On the 26th and also on the 27th two diarrhœic stools without mucus were passed, on the 28th there was constipation, and on the 29th and 30th a solid stool was passed. From this time one or two stools, diarrhœic or solid, usually the latter, were passed daily without any mucus. However, as a safeguard, the ipecacuanha enemata were continued until May 2nd. On May 24th the patient was discharged cured and weighing 72 kilogrammes. Although bacteriological examination was not made amœbic dysentery was diagnosed—a view confirmed by the rapid action of the ipecacuanha. In spite of the late appearance of the disease it evidently was contracted in the colony. M. Maurin claimed that he had obtained as good a result as is given by subcutaneous injections of emetine. He explained the frequent failure of ipecacuanha given by the mouth to the fact that the emetine does not reach the seat of the disease in sufficient quantity to destroy the amœbæ. When administered by enema, on the other hand, the remedy is brought directly into contact with the disease.

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[1] See THE LANCET, June 28th, 1913, p. 1803.

MEALS.

IT has often been remarked that more people suffer from eating too much than from drinking to excess. With the present laudable and ever-progressing diminution in the consumption of alcoholic drink the proposition tends to become true; formerly, no doubt, it was a purposely exaggerated statement put forward as a rule either to enforce a warning to dyspeptics or to excuse intemperance by a *tu quoque* argument. The unfortunate fact under our present social conditions is that, while many persons suffer because they eat too much, a great many more suffer because they eat too little. Were the entire food-supply of the world equitably distributed the labours of surgeons and physicians alike would be sensibly reduced, but in the meantime those who eat too much are as frequently the care of medical men as are those who eat too little. This is not because they need the care more, but because they belong to the classes who can obtain it always, while the compulsorily abstemious cases can only be helped by social and legislative means. But if those who eat too much can generally command medical help they are not necessarily always benefited by it, for too often they make what is known as "bad patients." The victims of excess or of deprivation can be relieved by treatment, but the advice must be carefully followed, and neither patient necessarily does this. The medical man has some chance of being obeyed when he advises a man who is well-to-do to omit one meal per diem, but complete obedience is not the rule; it is little use his advising an extra meal a day to the man whose poverty prevents him getting the nourishment he needs. In the case of the man who eats too much, and equally in the case of the man who cannot obtain more than two meals a day, it is suggested, we have read recently, that the meal to be sacrificed should be breakfast. The reason offered for this belief is that after the night's sleep the bodily strength, nervous and muscular, is at its highest, and work can be carried on without food. The machine is running strongly, and no fuel is required for the time being. There would appear to be good foundation for such belief, and yet in this country at any rate we believe very few people act upon it. How many men are in the habit of doing any work before they have breakfasted? Very few we imagine. Yet, as the evidence of some literary men proves, there is no time of day more fitted for the production of intellectual or imaginative work than the early morning hours, which, quiet and refreshing, are friendly to brainwork, breakfast or no breakfast. For manual labour the no-breakfast plan is not so suitable. A little fresh air exercise to start the day, following the habit of some athletes in training, is a thing that many a professional or business man might cultivate with advantage. We do not think, however, that he will be disposed to omit breakfast before entering on the day's work, nor can we encourage him to do so. But we are convinced that his breakfast should often be lighter than that of the average Englishman. There is a great deal to be said in favour of the "coffee and rolls" plan, and for men whose day is spent in work which taxes the brain and nervous system generally more than the muscles, the wise course is to relegate anything approaching a hearty meal to the period of relaxation, the evening. But that part of the continental system which involves the eating of a heavy lunch is as objectionable as our own heavy breakfast plan. It can be excused only if adequate time is given after the meal for the digestion thereof, and most professional and business men cannot spare the hour's ease which should follow a hearty midday meal. In most continental cities where the midday meal is a heavy one an hour or so is commonly spent in smoking and chatting afterwards. This leisurely proceeding, however, is not possible with the more strenuous business habits of England and America, as the "quick lunch" institution testifies. Nor need the quick lunch be severely deprecated if the quantity of food ingested is reduced in accordance with the time taken for its consumption. If the quick luncher is also a heavy luncher then he combines the evil properties of both the continental and English methods, and will doubtless incur the punishment of the dyspepsia which his habits invite. But if the meals during the day be light we do not think that the worker need be asked to forego either his breakfast or his lunch.

STRUCTURE OF THE ERYTHROCYTES.

IN the September issue of the *Medical Chronicle* Dr. E. M. Brockbank records some experiments which may throw light on the minute structure of the red corpuscles of the blood. The method employed was the exposure of a film of blood, fixed on a microscope slide, to the action of pepsin and hydrochloric acid, and different results were obtained according to the degree of dilution of the acid constituent. If the acidity is approximately 0·01 per cent., the erythrocytes are seen almost immediately to emit amorphous brownish granules containing their hæmoglobin element, these granules being soluble in acid alcohol and in weak solutions of sodic hydrate. The granules are of considerable bulk, too voluminous, indeed, to consist of hæmatin alone, and may perhaps be formed of a compound of this substance with lecithin. If a rather weaker acid solution is used, such as 0·005 *per cent.*, a rough appearance maintenance, and depreciation would probably cost £100 per annum and a motor-car £150. The net salary, therefore, cannot greatly exceed £400, and for this sum a district with some 60,000 population spread over an area of 220,000 acres has to be served. No doubt it is desirable that medical officers of health should have some knowledge ot practical chemistry and bacteriology, but it should be remembered that an officer cannot both be spending his time in the laboratory and attending to his other and generally more important duties. Moreover, most laboratory work requires to be done when epidemic diseases are most prevalent—that is, just when there is least time to spare for such work. On the whole, it seems desirable that chemical and bacteriological work should be done in properly equipped and staffed laboratories, such as many county councils have provided and which others should provide, since it is quite certain that in a district such as has been referred to above the medical officer of health will find quite sufficient to do without having this additional work thrust upon him. Sanitary authorities generally do not seem to be aware that the analysis of water is not a duty imposed upon the medical officers of health by the Local Government Board. As a rule, however, the Board does not appear to object to them undertaking such work, nor does the sanction of the Board appear to be required to such an arrangement between an authority and its medical officer.

THE TREATMENT OF LEPROSY BY CHAULMOOGRA OIL.

The treatment of leprosy remains, in the majority of instances, extremely unsatisfactory notwithstanding the fact that numerous remedies at one or another time have been confidently put forward as cures for the malady. No method of treatment, however, has so far entirely realised the bright anticipations of sanguine originators. Even sera and vaccines from which much has been expected seem still to be in the experimental stage. Among the many drugs which have received an extended trial in leper hospitals and which have appeared at least to ameliorate the leprous condition in some cases, chaulmoogra oil occupies a prominent place. This oil is obtained by expression from the seeds of some species of gynocardia, and has been employed both internally and as an external application. Scheube, in his classical work on the diseases of tropical countries, states that this remedy is identical with the Tai-fuchi, which has acquired a very high reputation among the Japanese as a remedy for leprosy. Chaulmoogra oil when administered by the mouth is apt to give rise to nausea and other symptoms, but fortunately it can be administered in the form of hypodermic injections. In our American contemporary, *Public Health Reports*, for Sept. 5th a very interesting note is published regarding the apparent cure of two cases of leprosy by the use of chaulmoogra oil in the San Lazaro Leper Hospital, Manila, by Dr. Victor G. Heiser, Director of Health for the Philippine Islands. One of the cases had been an inmate of the leper hospital for four and the other for three and a half years. When admitted both presented typical appearances of leprosy, and B. lepræ was found in scrapings taken from the lesions on the face. At first they were treated by chaulmoogra oil administered by the mouth, but in both instances this gave rise in a short time to gastric disturbances so that the treatment had to be continued by means of injections of the oil combined with camphor and resorcin given hypodermically. In a comparatively short time improvement was noted, and gradually the lesions healed. In June, 1913, careful and prolonged clinical as well as microscopical examinations failed to detect any evidence of the presence of leprosy in either case, and they were accordingly discharged from the leper hospital on probation. It is proper to mention here that immediately after their admission both patients had for a brief period received vaccine treatment, but whether this had any influence upon the subsequent improvement that occurred Dr. Heiser is unable to say. He mentions, however, in this connexion that there are at the present time in the San Larazo Leper Hospital "a number of other cases" which have for the last 22 months presented only negative evidence as regards leprosy, though all of them had exhibited typical lesions when the treatment with chaulmoogra oil was begun. The definite progress which these cases have made towards apparent cure cannot be attributed to any vaccine treatment since they had none. We have had occasion before to draw the attention of our readers to the fact that in some cases of leprosy under no form of special treatment marked improvement appears to occur spontaneously and unaccountably. It might be argued that the two cases described by Dr. Heiser were of this nature, but we are inclined to think that they were not; especially in view of the number of other cases which seem to be on the way to recovery after the same treatment by chaulmoogra oil. Obviously we must before coming to a definite opinion wait for further details about the latter group of cases, and for this reason we shall look forward with much interest to Dr. Heiser's next communication upon the subject. It is possible that chaulmoogra oil, alone or in combination with other remedies, acts more efficaciously when injected hypodermically than when administered by the mouth.

The Harveian Oration will be delivered at the Royal College of Physicians of London by Dr. J. Mitchell Bruce at 4 o'clock on Saturday, Oct. 18th.

The Metropolitan Water Board, having contracted out of the National Insurance Act, are arranging for the medical treatment of their employees, for which purpose they require district medical officers. The announcement of the Water Board in this connexion will be found in our *advertising* columns of last week.

We published in our issue of August 16th a report of the Permanent Commission of the International Medical Congress, which included among the gazetted recommendations of the committees for awarding of Congress prizes the award of the Hungary prize to Sir Almroth E. Wright for his work on anaphylaxis. The statement was made in the official publication of the Congress, but was an error in wording. The prize was awarded for Sir Almroth Wright's splendid researches on immunity and vaccine therapeutics.

Middlesex Hospital Medical School.—The opening of the seventy-ninth winter session will take place on Wednesday, Oct. 1st, at 3 p.m. The introductory address will be delivered by Mr. Sampson Handley, F.R.C.S., after which Sir Squire Bancroft will distribute the prizes. The annual dinner of past and present students and their friends will be held the same evening at 7 p.m. precisely at the Trocadero Restaurant, Sir James Kingston Fowler, K.C.V.O., being in the chair.

London (Royal Free Hospital) School of Medicine for Women.—The opening of the winter session will take place on Wednesday, Oct. 1st, at 4 p.m., Mrs. E. Garrett Anderson, M.D., President of the School, being in the chair. The introductory address on "The Medical Needs of India" will be delivered by Director-General Sir Charles P. Lukis, K.C.S.I. Light refreshments will be served.

ANNUAL REPORT OF THE REGISTRAR-GENERAL FOR IRELAND FOR 1912

THE General Register Office in Ireland was established half a century ago, the first annual report of the Registrar-General having been published in 1864 The present report, the appearance of which was announced in a recent issue,[1] is the forty ninth of the series, and deals with the registration of births, deaths, and marriages in the year 1912 The Registrar General, Sir W J Thompson, has shown great energy and ability in the conduct of his department since his assumption of office In every important detail he has followed in the footsteps of his predecessor, Dr Thomas Grimshaw, to whom preventive medicine is indebted for his successful method of determining the true mortality prevailing amongst the various social grades in a large urban community

Statistics

In the volume before us, which runs to 180 pages, the usual tables are given showing the movement of the population in recent years From this it appears that the births in the year 1912 exceeded the deaths and emigrations together by 1102 which number represents the increase of the population of Ireland as compared with the estimated numbers in the preceding year

The death rate in the whole of Ireland was the lowest recorded since the year 1871, it was 16 46 per 1000 living, and was below the average rate in the previous decennium by 0 83 per 1000 The mortality varied greatly in the several areas, the proportions varying from the lowest 12 2 in Kerry County and 13 5 in Mayo to 18 1 in Monaghan County and 18 7 in Armagh Of the total deaths registered in Ireland 13 8 per cent occurred in workhouses or workhouse hospitals, the percentages thus returned varying in the several provinces from 10 1 in Ulster and 10 3 in Connaught to 16 0 in Leinster and 19 1 in Munster Among many useful tables which have been continued from previous reports we welcome Table VII, which shows in 18 definite groups the occupation or social position of all persons dying in the Dublin registration area during the year under notice The usual columns are appended showing the death rates by ages and causes and the proportion of deaths occurring without medical care This table forcibly illustrates the effect of occupation on mortality Thus we learn that whilst among families of the middle class numbering more than 100 000 the death rate barely exceeded 14 per 1000, it was equal to 23 per 1000 among car drivers and to 27 per 1000 among the hawkers, porters, and labourers who constitute one fourth of the Dublin population The official records at Charlemont House, from the early days of Dr Grimshaw to the present time are available for reference, and furnish a trustworthy standard by which the effects of sanitary and social progress in future years may be measured

In Ireland the proportion of deaths registered as uncertified —i e, as having taken place without medical care—is still enormous Although the proportion is slightly decreasing, it was equal to 23 per cent of the total deaths in the year 1912 Both in England and Scotland the deaths returned as uncertified in the same year were less than 2 per cent In the province of Leinster the proportion of uncertified deaths was 16 and in Ulster 18 per cent, whilst in Munster it was 26 and in Connaught not less than 49 per cent of the total deaths recorded Of the deaths registered in Ireland last year, 461 were those of persons aged 95 years or upwards, of which number 123 were stated to have attained the age of 100 years Absolute verification of these ages is obviously impossible owing to the absence of public records for remote periods But from careful supplementary inquiries respecting reputed centenarians these ages are believed to have been correctly stated

Tuberculous Diseases —Amelioration of Insanitary Conditions

From an instructive diagram we learn that among definite causes of death tuberculous diseases occupied the first place in the year under notice The mortality from tuberculosis in all its forms showed a decrease last year in the provinces of Ulster, Connaught, and Leinster, and an increase in the province of Munster In the course of the last completed decennium the highest death rate from all forms of tuberculosis occurred in the year 1904, when the rate was 2 88 per 1000, since which date there has been a gradual decline to a rate of 2 15 in the year 1912, showing a difference in the earlier as compared with the later year of more than 25 per cent The figures for other parts of the United Kingdom are not yet available for 1912 but in the year 1911 the death rate in England and Wales was 1 5 per 1000, in Scotland 1 7, and in Ireland 2 2 per 1000 of the respective populations Of the deaths from all forms of tuberculosis about three fourths are due to tuberculous phthisis *From a table showing the relation of age to* mortality from this disease we gather that nearly 74 per cent of the total deaths take place at ages between 15 and 45 years In both sexes the highest phthisis death rate occurs at the age group 25–35 years, men at that age succumbing at the rate of 3 09 per 1000 and women at the rate of 3 17 per 1000 living In the Dublin registration *area the rate of mortality from pulmonary tuberculosis in the* year under notice was 0 41 per 1000 among the professional and independent classes, 1 50 per 1000 among the middle classes, 2 28 per 1000 among the artisan class, and 2 23 per 1000 among the general service class

The following are among the agencies operating in Ireland for the benefit of the sick poor during the year under notice The Women's National Health Association, under the presidency of Lady Aberdeen, has continued its activities for the benefit of the public health, and has established additional branches for the extension of its work throughout the country Excellent work is still achieved by Lady Dudley's nurses among the sick poor in outlying districts Those rural medical officers of health, who are also registrars for their several districts, have continued to furnish instructive notes which the Registrar General regards as expressions of expert opinion upon the influences locally at work for the amelioration of insanitary conditions A few of these deserve mention here

"I find the nurses provided by the Association to be the greatest he trict" Another registrar reports "People here are wonderfully improved in the matter of cleanliness, and are becoming keenly alive to the necessity of admitting fresh air into their houses" Another medical registrar remarks that a custom exists in his district which is most dangerous to health In every case of illness amongst the peasantry (except fevers, which they shun) the neighbours flock to see the sick person, and if the patient be a smoker, some friend lights his pipe and hands it to the sick man to smoke That infected pipe is then passed on from mouth to mouth round the assembly "I have known" says the registrar, "infection by pulmonary phthisis to be contracted by this pernicious habit"

Infectious Diseases —Infantile Mortality

From the section of the report that deals with "the common infectious diseases" it appears that, as compared with the experience of the previous year, the mortality in Ireland was excessive in the case of measles, scarlet fever, whooping cough, and influenza *On the other hand, enteric* fever, typhus and diphtheria were substantially less fatal

Infantile mortality in Ireland was at the rate of 86 4 per 1000 births, which is below the low rate of the preceding year by 8 per cent In the "civic" unions of Ireland the rate was 115 per 1000 births and 66 5 per 1000 in the remaining or rural unions

ASYLUM REPORTS

County and City of Worcester Lunatic Asylum Powick (Annual Report for the Year 1912) —The total number of patients under treatment at this asylum was 1216, the average daily number resident being 1032. There were admitted 248 cases, and a history of a previous attack was noted in 15 7 per cent of the direct admissions The chief causes assigned in the direct admissions were stress, 14 4 per cent, heredity, 11 2 per cent, senility, 8 per cent, and alcohol, 7 2 per cent Forty five persons were discharged, and of these 31 were recovered, giving a rate of 24 8 per cent on the direct admissions The deaths numbered 92 being at the rate of 8 91 per cent on the daily average number to 16·4 per 1000 in the week under notice. During the first eleven weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 14·3, against 12·4 per 1000 in the 96 large English towns. Among the several Scotch towns the death-rates in the week under review ranged from 7·5 in Kilmarnock, 9·5 in Hamilton, and 10·2 in Motherwell, to 19·5 in Paisley, 20·9 in Kirkcaldy, and 21·5 in Greenock.

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[1] THE LANCET August 2nd, 1913, p 344

The 711 deaths from all causes were 12 fewer than the number in the previous week, and included 126 which were referred to the principal epidemic diseases, against numbers steadily increasing from 61 to 121 in the six preceding weeks. Of these 126 deaths, 96 resulted from infantile diarrhœal diseases, 12 from measles, 7 from diphtheria, 5 from whooping-cough, 4 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 126 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·9, against 3·6 per 1000 in the 96 large English towns. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had increased from 21 to 89 in the six preceding weeks, further rose to 96 in the week under notice; of this number 56 occurred in Glasgow, 9 in Greenock, 8 in Dundee, 6 in Paisley, 5 in Aberdeen, 4 in Leith, and 3 in Kirkcaldy. The deaths referred to measles, which had been 15, 9, and 14 in the three preceding weeks, numbered 12, of which 8 were registered in Glasgow. The fatal cases of diphtheria, which had been 7, 5, and 6 in the three preceding weeks, were 7, and included 3 in Glasgow and 2 in Edinburgh. The 5 deaths attributed to whooping-cough, of which 4 were recorded in Glasgow, were 2 below the average in the three preceding weeks. The 4 deaths referred to scarlet fever, comprising 3 in Edinburgh and 1 in Glasgow, were slightly below the average in the three preceding weeks. One fatal case of enteric fever occurred in Glasgow and 1 in Dundee.

The deaths referred to diseases of the respiratory system, which had increased from 44 to 86 in the four preceding weeks, declined to 65 in the week under notice; 25 deaths resulted from different forms of violence, against 27, 22, and 28 in the three preceding weeks.

In the 16 largest Scotch towns 1061 births and 625 deaths were registered during the week ended Saturday, Sept. 20th. The annual rate of mortality in these towns, which had been 14·1, 16·7, and 16·4 per 1000 in the three preceding weeks, further declined to 14·4 per 1000 in the week under notice. During the first twelve weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 14·3, against 12·6 per 1000 in the 96 large English towns. Among the several towns the death-rate last week ranged from 7·3 in Clydebank, 7·6 in Motherwell, and 7·8 in Leith and in Kirkcaldy, to 18·3 in Ayr, 18 6 in Dundee, and 18·8 in Greenock.

The 625 deaths from all causes were 86 fewer than the number in the previous week, and included 94 which were referred to the principal epidemic diseases, against numbers steadily increasing from 69 to 126 in the seven preceding weeks. Of these 94 deaths, 62 resulted from infantile diarrhœal diseases, 9 from measles, 9 from whooping-cough, 8 from diphtheria, 4 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 94 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·2, against 3·3 per 1000 in the 96 large English towns. The deaths of infants (under 2 years of age), which had risen from 21 to 96 in the seven preceding weeks, declined to 62 last week, and included 30 in Glasgow, 7 in Dundee, 6 in Aberdeen, 6 in Paisley, and 3 in Kirkcaldy. The deaths referred to measles, which had been 9, 14, and 12 in the three preceding weeks, fell to 9 last week, of which 5 were registered in Glasgow and 2 in Leith. The fatal cases of whooping-cough, which had been 9, 6, and 5 in the three preceding weeks, rose to 9 last week, and included 6 in Glasgow. The 8 deaths attributed to diphtheria, comprising 5 in Glasgow, 2 in Aberdeen, and 1 in Greenock, were slightly in excess of the average in the three preceding weeks. Of the 4 deaths referred to scarlet fever, 3 occurred in Glasgow and 1 in Ayr; the fatal cases of enteric fever were recorded in Glasgow and Edinburgh respectively.

The deaths referred to diseases of the respiratory system, which had been 69, 86, and 65 in the three preceding weeks, were 65 last week; 17 deaths resulted from various forms of violence, against 28 and 25 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregat population estimated at 1,199,180 persons at the middle o this year, 587 births and 455 deaths were registered durin the week ended Saturday, Sept. 20th. The annual rat of mortality in these towns, which had been 20·7, 19·9 and 21·1 per 1000 in the three preceding weeks, declined t 19·8 per 1000 in the week under notice. During the 1 weeks of the current quarter the mean annual death-rate i these Irish towns averaged 17·9 per 1000; in the 96 larg English towns the corresponding rate did not exceed 12·6 while in the 16 Scotch towns it was equal to 14·3 per 1000 The annual death-rate last week was equal to 18·1 i Dublin (against 13·7 in London and 14·9 in Glasgow), 21·1 in Belfast, 30·6 in Cork, 22·9 in Londonderry, 10·8 i Limerick, and 13·3 in Waterford, while in the remaining 21 smaller towns the mean death-rate did not exceed 18·5 per 1000.

The 455 deaths from all causes were 30 fewer than the number in the previous week, and included 120 which were referred to the principal epidemic diseases, against numbers rising from 27 to 132 in the eight preceding weeks. Of these 120 deaths, 98 resulted from infantile diarrhœal diseases, 7 from measles, 6 from scarlet fever, 4 from diphtheria, 3 from enteric fever, and 2 from whooping-cough, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 5·2 per 1000; in the 96 large English towns the corresponding rate was 3·3, while in the 16 Scotch towns it did not exceed 2·2 per 1000. The deaths of infants (under 2 years of age) attributed to diarrhœa and enteritis, which had been 97, 92, and 111 in the three preceding weeks, declined to 98 last week, and included 37 in Belfast, 25 in Dublin, 13 in Cork, 6 in Londonderry, and 3 in Waterford. The deaths referred to measles, which had been 6, 10, and 2 in the three preceding weeks, rose to 7 last week, of which 5 occurred in Galway. The 6 fatal cases of scarlet fever, comprising 4 in Belfast and 2 in Dublin, were double the average in the preceding weeks of the current quarter. Of the 4 deaths attributed to diphtheria, 3 occurred in Belfast and 1 in Larne; of the 3 fatal cases of enteric fever 2 were registered in Belfast and 1 in Dublin; while the 2 deaths from whooping-cough were recorded in Belfast and Lisburn respectively.

The deaths referred to diseases of the respiratory system, which had been 43, 42, and 41 in the three preceding weeks, rose to 56 in the week under notice. Of the 455 deaths from all causes, 110, or 24 per cent., occurred in public institutions, and 12 resulted from different forms of violence. The causes of 11, or 2·4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

VITAL STATISTICS OF LONDON DURING AUGUST, 1913.

In the accompanying table will be found *summarised* complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 5·4 per 1000 of the population, estimated at 4,518,191 persons in the middle of the year; in the three preceding months the rates were 4·8, 5·4, and 6·6 per 1000 respectively. The lowest rates last month were recorded in Kensington, the City of Westminster, Hampstead, the City of London, and Wandsworth; and the highest rates in Stepney, Poplar, Southwark, Bermondsey, and Deptford. The prevalence of scarlet fever showed a marked decline from that recorded in the preceding month; this disease was proportionally most prevalent in St. Marylebone, Poplar, Southwark, Bermondsey, and Deptford. The Metropolitan Asylums Hospitals contained 2093 scarlet fever patients at the end of last month, against 1414, 1579, and 2093 at the end of the three preceding months; the weekly admissions averaged 258, against 184, 232, and 312 in the three preceding months. Diphtheria also was considerably less prevalent than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded in St. Pancras,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1913.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,518,191	—	1001	445	1	58	—	24	304	4	20	1857	5·4	—	36	20	20	33	12	465	586	1·7	4097	11·8
West Districts.																								
Paddington	142,210	—	27	9	—	6	—	—	8	—	—	50	4·6	—	4	2	—	1	1	7	15	1·4	127	11·5
Kensington	171,284	—	31	6	—	3	—	1	2	2	—	45	3·4	—	1	1	—	—	—	9	11	0·8	116	8·8
Hammersmith	123,745	—	24	11	—	1	—	1	8	—	—	45	4·7	—	—	—	1	—	—	3	4	0·4	109	11·4
Fulham	157,117	—	41	11	—	3	—	—	14	—	—	69	5·7	—	—	1	1	1	1	19	23	1·9	112	9·6
Chelsea	64,598	—	15	1	—	2	—	—	6	—	—	24	4·8	—	—	1	—	1	—	3	5	1·0	48	9·2
City of Westminster	154,810	—	18	13	—	1	—	—	7	—	—	39	3·3	—	—	—	—	1	—	5	6	0·5	114	10·1
North Districts.																								
St. Marylebone	114,532	—	37	3	—	—	—	—	5	—	—	45	5·1	—	1	—	—	—	—	2	3	0·3	83	9·6
Hampstead	86,346	—	7	4	—	2	—	—	2	—	2	17	2·6	—	—	—	—	1	—	1	2	0·3	64	10·3
St. Pancras	214,330	—	47	27	—	5	—	1	15	—	2	97	5·9	—	—	1	1	1	—	14	17	1·0	189	11·5
Islington	325,585	—	73	35	—	3	—	2	21	—	4	138	5·5	—	—	1	—	1	—	23	25	1·0	276	10·8
Stoke Newington	50,518	—	7	3	—	1	—	—	2	—	1	14	3·6	—	—	—	—	—	—	1	1	0·3	38	9·3
Hackney	223,353	—	44	22	—	1	—	3	12	—	2	84	4·9	—	4	—	2	—	1	21	28	1·6	212	12·5
Central Districts.																								
Holborn	46,949	—	11	2	—	2	—	—	3	—	—	18	5·0	—	—	—	—	—	—	—	—	—	52	14·5
Finsbury	84,679	—	17	11	—	—	—	—	6	—	—	34	5·2	—	—	2	—	3	—	21	26	4·0	131	20·0
City of London	17,916	—	3	—	—	1	—	—	—	—	—	4	2·9	—	—	—	—	—	—	—	—	—	11	8·3
East Districts.																								
Shoreditch	109,654	—	8	19	—	1	—	1	17	—	1	47	5·6	—	—	—	2	1	—	31	34	4·0	145	17·8
Bethnal Green	127,824	—	28	16	—	6	—	—	15	—	—	65	6·6	—	1	—	—	2	1	21	25	2·5	123	13·0
Stepney	275,300	—	70	43	—	4	—	3	32	—	2	154	7·3	—	3	2	2	1	1	45	54	2·6	276	13·7
Poplar	160,913	—	59	17	—	3	—	5	12	—	—	96	7·8	—	5	2	2	2	—	41	52	4·2	227	18·2
South Districts.																								
Southwark	188,487	—	60	27	1	3	—	1	18	—	—	110	7·6	—	4	2	3	—	1	31	41	2·8	226	15·7
Bermondsey	124,739	—	49	17	—	1	—	1	10	—	1	79	8·3	—	5	—	1	1	1	39	47	4·9	168	17·6
Lambeth	297,139	—	66	27	—	3	—	1	14	—	—	111	4·9	—	2	1	1	5	2	19	30	1·3	284	12·3
Battersea	167,464	—	54	15	—	—	—	1	11	—	2	83	6·5	—	1	1	1	3	—	15	21	1·6	127	10·0
Wandsworth	330,395	—	36	27	—	—	—	3	15	1	1	83	3·3	—	1	1	1	1	—	22	26	1·0	204	8·0
Camberwell	261,805	—	64	18	—	2	—	—	18	1	1	104	5·2	—	1	2	—	1	1	24	29	1·4	220	10·9
Deptford	109,280	—	33	13	—	—	—	—	14	—	—	60	7·2	—	2	—	—	5	—	18	25	3·0	107	12·6
Greenwich	96,015	—	16	12	—	—	—	—	11	—	—	39	5·3	—	1	—	—	—	—	7	8	1·1	84	11·2
Lewisham...	168,822	—	25	25	—	1	—	—	4	—	—	55	4·2	—	—	—	2	—	1	9	12	0·9	121	9·1
Woolwich...	122,382	—	30	11	—	3	—	—	2	—	1	47	5·0	—	—	—	—	1	1	14	16	1·7	103	11·3
Port of London	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

Shoreditch, Stepney, Southwark, Bermondsey, Lewisham, and Greenwich. There were 798 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 803, 811, and 886 at the end of the three preceding months; the weekly admissions averaged 99, against 105, 116, and 128 in the three preceding months. The prevalence of enteric fever showed a slight diminution from that in the preceding month; this disease was proportionally most prevalent last month in Paddington, Chelsea, Hampstead, Holborn, Bethnal Green, and Woolwich. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 41, 35, and 50 at the end of the three preceding months, had declined again to 37 at the end of last month; the weekly admissions averaged 6, against 7, 5, and 10 in the three preceding months. Erysipelas was proportionally most prevalent in Fulham, Shoreditch, Chelsea, Bethnal Green, Stepney, Southwark, Deptford, and Greenwich. The 24 cases of puerperal fever notified during the month included 5 in Poplar, 3 in Hampstead, 3 in Stepney, 3 in Wandsworth, and 2 in Islington. The 4 cases of cerebro-spinal meningitis included 2 in Kensington; and the 20 cases of poliomyelitis included 4 in Islington and 2 each in Hampstead, St. Pancras, Hackney, Stepney, and Battersea.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the four weeks ending August 30th the deaths of 4097 London residents were registered, equal to an annual rate of 11·8 per 1000; in the three preceding months the rates had been 12·9, 11·1, and 10·6 per 1000 respectively. The death-rates last month ranged from 8·0 in Wandsworth, 8·3 in the City of London, 8·8 in Kensington, 9·1 in Lewisham, 9·2 in Chelsea, and 9·3 in Stoke Newington, to 14·5 in Holborn, 15·7 in Southwark, 17·6 in Bermondsey, 17·8 in Shoreditch, 18·2 in Poplar, and 20·0 in Finsbury. The 4097 deaths from all causes included 586 which were referred to the principal infectious diseases; of these, 36 resulted from measles, 20 from scarlet fever, 20 from diphtheria, 33 from whooping-cough, 12 from enteric fever, and 465 from diarrhœa and enteritis among children under two years of age. No death from any of these diseases was recorded last month in the City of London or in Holborn; among the other boroughs they caused the lowest death-rates in Hammersmith, St Marylebone, Hampstead, and Stoke Newington, and the highest rates in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Deptford. The 36 fatal cases of measles were 53 below the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Paddington, Hackney, Poplar, Southwark, Bermondsey, and Deptford. The 20 deaths from scarlet fever were slightly above the corrected average number, and included 2 in Paddington, 2 in Finsbury, 2 in Stepney, 2 in Poplar, 2 in Southwark, and 2 in Camberwell. The 20 fatal cases of diphtheria were 12 below the corrected average number; of these, 3 belonged to Southwark, and 2 each to Hackney, Shoreditch, Stepney, Poplar, and Lewisham. The 33 deaths from whooping-cough were 23 fewer than the corrected average number, and included 5 in Lambeth, 5 in Deptford, 3 in Finsbury, 3 in Battersea, 2 in Bethnal Green, and 2 in Poplar. The 12 fatal cases of enteric fever were 2 in excess of the corrected average number; 2 cases belonged to Lambeth. The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in Fulham, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 41·3 per cent. below the average.

IT is announced that Dr. Edward Burnet, of Tunbridge Wells, has been selected as Liberal candidate for the boroughs of Warwick and Leamington at the next election. Dr. Burnet was formerly medical officer of health of Leamington.

THE SERVICES.

COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

AN examination for not less than 12 commissions in the Royal Army Medical Corps will be held on Jan. 28th, 1914. Applications to compete should be made to the Secretary, War Office, not later than Jan. 19th, 1914. The presence of candidates will be required in London from Jan. 26th, 1914. Intending candidates will find in the Students' Number of THE LANCET, published on August 30th, a full statement of the duties and emoluments of the service, which now offers so many opportunities to its officers.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been notified:—Fleet-Surgeons: W. Jackson to the *Woolwich*, on commissioning, and W. R. Center to the *Russell*. Staff-Surgeons: R. L. Jones to the *Victory*, for disposal, temporary, and W. E. Ormsby to the *Eclipse* for voyage home. Surgeons: A. S. Paterson to the *Eclipse*, on recommissioning, for voyage out, and to the *Egmont* on arrival at Malta; and G. B. Cockrem to the *Pembroke*, additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Captain Henry W. Long to be Major (dated June 27th, 1913).

Colonel A. E. Tate has arrived home from India on leave of absence.

Lieutenant-Colonel J. Donaldson has been selected for appointment to hold charge of the Military Hospital at Jubbulpore Cantonment. Lieutenant-Colonel J. Thomson has taken over charge at the Record Office, Royal Army Medical Corps Depôt, Aldershot. Lieutenant-Colonel C. T. Blackwell has been granted six months' leave of absence. Lieutenant-Colonel H. J. Pocock has joined at Murree Cantonment. Lieutenant-Colonel O. L. Robinson has taken up duty as Professor of Tropical Medicine at the Royal Army Medical College, in succession to Major W. S. Harrison. Lieutenant-Colonel R. Holyoake has been placed under orders for a tour of service with the Southern Army in India.

Major P. H. Henderson has been transferred from the Military Hospital at Portsmouth to the Royal Army Medical Corps Camp of Instruction at Tidworth Park. Major M. C. Beatty has taken up duty at Tregantle. Major T. F. Ritchie has been appointed to the London District. Major C. R. Evans has arrived home on leave of absence from the Military Hospital at Malta. Major H. A. Davidson has embarked for a tour of service in the Straits Settlements. Major C. G. Thompson has been transferred from the Military Hospital at Glasgow to Glencorse. Major E. C. Hayes has taken up duty at the Military Hospital, Cosham, on transfer from Lodmoor Camp. Major A. A. Seeds has been appointed Senior Medical Officer at Kuldana, Murree Hills District. Major S. W. Sweetnam has been granted eight months' leave of absence home from India on medical certificate, with permission to revert to the Home establishment on its completion. Major R. C. Wilson, specialist in otology at Gibraltar, has arrived home on leave of absence. Major L. L. G. Thorpe has been placed under orders to embark for a tour of service with the Southern Army in India. Major G. Mansfield has relinquished charge of the Military Hospital at Norwich. Major W. M. B. Sparkes has been placed under orders to embark for service in the Sierra Leone Protectorate. Major P. J. Probyn, D.S.O., has been transferred from the Military Hospital at York to Sheffield. Major W. E. Hudleston has been appointed to hold medical charge at Wool Camp on transfer from the Military Hospital at Portsmouth. Major S. M. Adye-Curran has arrived home on leave of absence from the Military Hospital at Sialkot Cantonment.

Captain J. St. A. Maughan has been transferred from the Royal Victoria Hospital at Netley to Tidworth Park. Captain H Stewart has been transferred from the Military Hospital at Ferozepore Cantonment to Halifax. Captain W. Egan has been transferred from the Military Hospital at the Curragh and placed in medical charge at Oranmore Camp. Captain C. T. Edmunds has arrived home from Peshawar. Captain A. T. Frost has embarked for a tour of service in India and on arrival will be appointed to the Northern Army. An exchange on the roster for service abroad has been approved between Captain C. E. W. S. Fawcett and Captain S. L. Pallant; the former officer will now embark for service in India with the Southern Army instead of the latter. Captain M. Keane has taken up duty in the Southern Command. Captain E. W. M. Paine has been transferred from the Military Hospital at Monmouth and appointed to hold medical charge at Pembrey Camp. Captain J. E. Powell has been selected for appointment as Specialist in Dermatology and Venereal Diseases to the Military Hospital at Hilsea. Captain J. W. Houston has been transferred from the Military Hospital at Peshawar Cantonment to Cherat. Captain W. J. E. Bell has been appointed for duty at Queen Alexandra's Military Hospital. Captain O. Ievers has been selected for appointment as Specialist in Midwifery and Diseases of Women and Children. Captain F. C. Lambert has embarked for a tour of service in India, and on arrival will be appointed to the Southern Army for duty. Captain J. Frazer has been appointed Specialist in Bacteriology to the Royal Victoria Military Hospital at Netley. Captain A. M. Pollard [illegible] astern Command for duty on [illegible] Hospital at Wynberg. Capt [illegible] placed under orders for a tour of service in the Sierra Leone Protectorate. Captain H. C. Sidgwick has been selected for appointment as Specialist in Operative Surgery. Captain P. Power has been placed under orders for transfer from the Military Hospital at Kilkenny to embark for a tour of service in India during the coming trooping season. Captain G. S. Parkinson has been appointed to the Scottish Command for duty on return from South Africa. Captain W. W. Brown, specialist in physical t[illegible] as Deputy Assistant D[illegible] to the Sixth (Poona) [illegible] been appointed Specialist in Bacteriology to the Dublin District. Captain G. G. Collet has been granted leave of absence home from India for six months.

Lieutenant H. J. G. Wells has been placed under orders to leave the Cork District for a tour of service in India during the coming trooping season. Lieutenant W. W. Pratt has been appointed to the London District. Lieutenants C. J. Little and A. A. M. Davies have taken up duty in the Northern Command. Lieutenant J. F. O'Connell has been appointed to the Aldershot Command. Lieutenant T. E. Osmond has been placed under orders to embark from Southampton for India on Oct. 22nd, and on arrival will be appointed to the Northern Army for a tour of duty. Lieutenant W. F. Christie has joined the Military Hospital at Singapore. Lieutenant H. R. L'Estrange has been placed under orders for a tour of duty in Mauritius. Lieutenant W. P. Croker has been ordered to join the Irish Command for duty, and on arrival will be appointed to the Dublin District. Lieutenant S. D. Large has been appointed to the London District for duty at the Queen Alexandra Hospital, Grosvenor-road, S.W. Lieutenant E. A. Strachan has been transferred from the military hospital at Edinburgh to Barry. Lieutenant H. J. S. Shields has been transferred from the Military Hospital at Windsor and placed in medical charge at Pirbright Camp. Lieutenant P. M. J. Power has joined the Royal Army Medical Corps Camp of Instruction at Tidworth Park, Salisbury Plain, on transfer from the Military Hospital at Cosham.

INDIAN MEDICAL SERVICE.

Colonel R. N. Campbell has been granted combined leave of absence home from India for eight months.

The ser[illegible] D. M. Davidson have been repl[illegible] Government of the Punjab. [illegible] civil surgeon at Delhi, has [illegible]ve of absence home from India.

Major T. C. H. Leicester has been appointed to officiate as surgeon to the Eden Hospital for Women during the absence on leave of Lieutenant-Colonel C. R. M Green. Major [illegible] Gibbs has been granted eight months' leave of [illegible] to the Bhopawar State, has been appointed to officiate as Political Agent during the absence on leave of Lieutenant-Colonel B. E. M. Gurdon, C.I.E., D.S.O. Major J. A. Black, on return from leave of absence, has been appointed Chemical Examiner to the Government of India. Major H. M. Mackenzie has been appointed to officiate as Professor of Pathology at the Government Medical College, Lahore, during the absence on two years' leave of Major W. H. C. Forster. Major W. F. Harvey has taken up duty as Director of the Central Research Institute of India at Kasauli Cantonment. Major W. R. Battye has been granted seven months' combined leave of absence home from India.

Captain J. A. A. Kernahan has been appointed to Shillong. Captain R. S. Kennedy has arrived home on leave of absence from India. The services of Captain M. R. C. MacWatters have been placed at the disposal of the Government of the United Provinces of Agra and Oudh for civil employment. Captain C. H. Cross has been attached to the Chemical Examiner's Department in Madras. Captain F. W. Sumner has been transferred to Saharanpur. Captain C. A. Gill has been granted an extension of leave of absence home from India. Captain H. R. Dutton has been reverted to the establishment of Bengal Presidency. The services of Captain W. S. McGillivray have been placed temporarily at the disposal of the Government of Burma for employment on plague prevention duty. Captain D. Coutts has been appointed to the substantive medical charge of the 37th Regiment of Dogras. Captain V. P. Norman has been granted an extension of leave of absence home from India on medical certificate until Nov. 10th next. The services of Captain R. B. S. Sewell have been replaced at the disposal of the Army Department, Government of India. Captain F. P. Mackie has been appointed to the Bacteriological Department. Captain J. H. Horne has arrived home on leave of absence from India. Captain J. E. Clements, superintendent of the central and district jails at Fategarh, has been granted privilege leave of absence. The services of Captain R. A. Lloyd have been placed temporarily at the disposal of the Chief Commissioner of the Central Provinces for civil employment. Captain W. Gillith has been granted two months' extension of furlough home from India. Captain [illegible] have been placed at the disposal of the Government of Bombay for employment in the Jail Department. Captain N. S. Simpson, plague medical officer on special deputation duty at Kasauli Cantonment, has been appointed to hold civil medical charge of the Cawnpore District, in succession to Lieutenant-Colonel W. Young. Captain B. E. M. Nowland has been deputed for duty with the travelling dispensaries in the United Provinces of Agra and Oudh. Captain W. D. Wright has been transferred from the charge of the Lucknow District to hold charge of the Benares District. Captain A. Miller has been granted one month's cave of absence.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Morton W. Ruthven, from the seconded list, is restored to the establishment (dated August 30th, 1913).

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd Northumbrian Field Ambulance, Royal Army Medical Corps: Captain James D. Sinclair resigns his commission (dated Sept. 24th, 1913).

Attached to Units other than Medical Units.—To be [illegible] William Murray Mackay, from [illegible] *Light Infantry* (dated [illegible] Frederick W. Sydenham [illegible] Lieutenant Cyril H. Welch [illegible] (dated May 22nd, 1913).

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. J. Breward Neal, M.R.C.P. Edin., L.F.P.S. Glasg., who recently retired from the position of medical superintendent of St. John's Hill Infirmary at Wandsworth, has been presented by the staff with a silver tea service, a silver rose bowl, a silver cake basket, a settee, and a reading stand in appreciation of his distinguished services. The rose bowl bore the following inscription: "Presented to Dr. J. Breward Neal, medical superintendent of the St. John's Hill Infirmary, on his retirement, after 34 years' service, by his fellow officers of the Wandsworth Union, June 30, 1913."

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(Continued from p. 898.)

XXII.—HULL AND THE FRIENDLY SOCIETIES.

Mr. John Lewenstein, solicitor and clerk to the Insurance Committee of the town and port of Hull, expressed to me his great satisfaction with the working of the National Insurance Act at Hull. Out of a population of 287,000 persons 95,000 are insured, although some 6000 of these persons, reported by panel doctors as on their lists, had not as late as midsummer been traced back to their Approved Societies or as Post Office contributors. But this sort of thing has not been peculiar to Hull.

The Position of the Friendly Societies.

In Hull there is a larger proportion of artisans and labourers than in most towns, and it was supposed to be the stronghold of Friendly Societies. The Druids have their headquarters here, the Sons of Temperance are very strong, the National Amalgamated Society, the Refuge, the Pearl, and many other Friendly Societies and speculative insurance companies are very active in Hull, and all are now working under the Act. Hull consequently seemed to afford a good opportunity for endeavouring to ascertain what is likely to result from allowing two totally different organisations—i.e., Friendly Societies and commercial insurance companies—to work the Act. Mr. Lewenstein had previously acted as clerk to a County Insurance Committee in Wales. He is vice-president of the National Association of Clerks to the Insurance Committees and has just been appointed editor of the organ of that association, and has taken so prominent a part in the National Insurance world that he was well able to give me full information on the matter. To my surprise, he took a different view to what most persons expressed with whom I discussed the question. He thought, contrary to the impression, which he admitted was widespread, that the Friendly Societies do their work well. The commercial societies, meaning certain life assurance societies, might have excellent business methods, but they did not pay the benefits due as promptly as the Friendly Societies. They were working to make money and the smallest pretext was eagerly seized as an excuse for deferring, perhaps avoiding altogether, the payment of sums claimed. The Friendly Societies, on the contrary, do not seek to make money, but endeavour to carry out the motto, "Bear ye one another's burdens."

Possible Abolition of the Insurance Committees.

In the struggle between the two forms of organisation, Mr. Lewenstein did not anticipate that the more businesslike administration of the commercial societies would end by sweeping away the Friendly Societies. Rather might such a contest result in the disappearance of both forms of organisation. There would then be created, on the German model, a National Insurance Organisation managed by the State and comprising the entire insured population. Such Friendly Societies or commercial insurance companies as might remain would provide all supplementary benefits that are not given under the Act.

Hull is not peculiar in one thing. Throughout the country I find that there is undoubtedly much bitterness of feeling and jealousy between the two very different sorts of organisations that have been allowed to carry out the Act. Some means will be attempted to bridge over this antagonism as it engenders so much discord. The present position is certainly very difficult, for experience proves that what occurred among those who voluntarily insured before the Act cannot be taken as an indication of what is happening to-day with the totally different population now under the compulsory clauses of the Act and forced to insure. These latter come from a different class of people altogether. A member of a Friendly Society is concerned in the prosperity of his society, for he is a paying partner, and it is to his interest to be careful not to occasion a larger expenditure than necessary. But the newly insured person, who did not belong to a Friendly Society, does not feel that there is a question of principle involved. He has never conceived that it might be his duty to pay a weekly subscription in order to help in bearing another's burden, and therefore he is much more likely to allow a cold to figure as quite a serious complaint if he can do so without malingering being detected. Many diseases manage in this way to expand, and they form, not only a drain on the funds secured under the Act, but a heavy tax on those extra benefits organised by the Friendly Societies over and above what the Act provides. For, after all, as long as the panel doctor signs the certificate, there is nothing to be done by the Society but to pay. One lodge, I am told, made a public statement that it had paid in three months as much as it paid during a year before the passing of the Act. Then the Temperance Friendly Societies say that their money is being eaten up by extra sickness among the intemperate. And over and over again the point was made to me that Friendly Societies, before the Act, were greatly composed of more or less selected lives. Under the Act medical examination before admittance has, of course, been abolished. Thus the drain on the funds has greatly increased, while, of course, the amount of work to be done by the medical men on the panel is also enormously greater than that done under the old system of contract practice. Everywhere this is the story—any increase of pecuniary return to the practitioner is accompanied by a vast increase of labour and of expenditure of time.

The Rising Generation and the Friendly Societies.

The attitude of the rising generation towards friendly societies is not as sympathetic as was that of their fathers. They will not give themselves the trouble to pay their subscriptions. The commercial companies have large staffs of collectors, and as these men very often collect for other purposes as well it pays them to go their rounds persistently. But this is not the case with the Friendly Societies, and unless the latter organise an equally effective body of collectors they will find themselves at a serious disadvantage. The commercial societies do all the work, take all the books, fetch them backwards and forwards; the subscriber has no trouble at all—he has only to leave out the money when the collector's call is due. If the young men of to-day will not take the trouble to pay in their contributions, still less are they likely to allow themselves to be elected as members of managing committees. The older generation looked upon the work of organisation as a matter of duty undertaken so as to better the condition of the class to which they belonged. They thought thus to do their duty towards their neighbour, and put in many hours of gratuitous work for conscience' sake, and their altruistic spirit misled them in one direction. As was shown sufficiently clearly in the articles which I wrote in THE LANCET now many years ago, entitled "The Battle of the Clubs," the conscience of these organisers allowed them, nay, appeared to impel them, to sweat their medical officers, who in some cases were abominably treated. The lamentable position which prevailed in Hull some 20 years ago or less is depicted in those articles very clearly, but that is not the point to which I wish to draw attention now. Such a thing as a Friendly Societies Medical Alliance paying in respect of 4000 members £208 for 27,000 consultations, or a fraction over seven farthings per consultation, cannot occur again, as it did in 1894. We may not be able to forget that such things happened, but it will be more useful to look ahead. The men who did these things were at any rate enthusiastic in the cause of their clubs. But the young men of to-day have not the interest in their Friendly Societies needed to make them attend lodge meetings. They will not take their share in the monotonous work of organisation. It is true that the old Friendly Societies were managed as a rule by a few public-spirited men, and that the rank and file of the members confined their energies to paying their subscriptions, while the wives who, fearing illness and domestic disaster, kept the men up to the point of regularly disbursing their insurance money. But the new members have not the same incentive to economy, and the prospect for the clubs is not good.

Lay Influence upon the Insurance Committees.

The outlook, so far as the medical profession is concerned, is far from pleasant to contemplate under certain possible developments in the working of the Act. To begin with, the representation of the Friendly Societies on the Insurance Committees is much too strong. I found this view, which was so clearly foreshadowed in THE LANCET, almost universally held in Hull. The Insurance Act is valuable to the medical profession because it changes entirely the position of the club doctor, who was under the beck and call of a lay committee composed of small tradesmen and of artisans. The committee that managed the club or Friendly Society was too often one without the slightest sympathy either with the aims of medicine or with the lot of the doctor who was employed by the members—the figures I have just quoted prove how true this was about Hull. But these former managers of clubs and Friendly Societies are resuming the control of medical practitioners as members of the Insurance Committees, and it seems that if the nominees of the Friendly Societies disappear from the Insurance Committees they will be replaced by the nominees of the insurance companies. The profession will then be even more directly under the thumb of commercial enterprise. This would be quite intolerable, and the desirability of replacing the Insurance Committees by a National Insurance Organisation, in accordance with Mr. Lewenstein's suggestion, might become evident to the medical profession. At least he believes so, and he is possibly right if events turn out upon the Local Insurance Committees as he foreshadows. But here he, and those who think with him, may have miscalculated. The panel doctor does not make a contract with Friendly Societies or with insurance companies, but with the Local Insurance Committee acting under the Insurance Commission, which is a State institution. If the State exercised more power so that the Local Insurance Committee should not become too much like the management committees of the old clubs medical men would probably feel more secure, while difficulties created by the demand of different clubs would disappear. The question of certificates gives an example of what I mean. Why should not the Commissioners draw up an official and satisfactory certificate—a uniform formula to be used throughout the country? Approved Societies want to enforce the use of whatever certificate they may approve. But the Insurance Act is national. The benefits come from the State and not wholly from the insured person's individual society. The State and not the Approved Society might well provide the proper or statutory form of certificate. The thing needed is that the attending practitioner must certify when the patient should be placed on the sick list, whether he should continue on the sick list, and finally that he is well enough to return to work. Some societies want a fresh certificate every other day, and the Commissioners should make the societies accept a uniform rule in this respect. There will be no peace until this question is definitely settled, and the certificates rendered uniform in all the insurance areas. As it is, some panel doctors repeat the details on every certificate, others content themselves with putting "as before." One society at Hull refused to pay sick allowance because the medical certificate was written with an indelible pencil instead of with a pen and ink! Some societies want the certificates signed only on one specially selected day in the week. Therefore the patient comes when he wants advice or medicine, and then he comes round again a day or two later because that is the day his society has fixed for the signing of certificates. This, of course, is a loss of time for both parties. At Hull the feeling is strong that the medical man would not be worried in this manner if the representatives of the clubs upon the Local Insurance Committees were less influential.

The Allotment of Insured Persons.

But there is no feeling against the Local Insurance Committee at Hull as a business organisation. Actually, at Hull 80 out of 120 general practitioners are on the panel, and a very good impression was produced when three days after their first quarter's work all the panel doctors received the full 1*s*. 9*d*. to which they were entitled for every insured person on their list. This showed good business management on the part of the Hull Insurance Committee and its secretary. None of the money was kept back, and the panel doctors will probably get some 20 per cent. more in respect of those insured persons who have not yet selected their medical attendant, and they number more than 15,000. These are to be allotted on the following principle. First, so as to keep the medical adviser near to his patient, Hull has been divided into three districts. The practitioners in the A or first district will be called together to ascertain how many panel doctors consider they have already a sufficient number of insured persons on their list. The unallotted persons will then be divided evenly among the panel doctors who still desire more patients. The doctors of the B and C districts will proceed in the same manner, and it is calculated that these three districts are very similar—namely, a mixture of slums and residential quarters. Some medical men have already got very large lists. Thus one practitioner has 2800 persons on his list and his partner, instead of being free to assist him, has 2000 persons on his list. This is a very large slice of practice under the Act for one firm to take. The insured are told to select a separate member of a firm and not the firm, and many of them do not know which practitioners have already very full lists, while all are likely to follow the example of some neighbour or another with the scriptural result that to him who hath there will be given. The restraining movement will have to come from the medical men. Those who have already very many patients on their lists should not desire to add to their responsibilities lest they bring medical service into some disrepute by adopting the old methods of contract practice. Already one of the abuses which the old club system used to encourage made [illegible] It was discovered [illegible] they were connec[illegible] these were circulated among others than the members of the societies concerned. The cards seemed to make capital out of a connexion with certain State Approved Societies and undoubtedly constituted an advertisement. Protests were made and the cards were promptly withdrawn.

The Pharmaceutical Chemists and the Act.

Some if not all of the panel doctors have been prescribing too freely. During the first quarter 67,000 prescriptions were made up at an average cost of over 7*d*. each. The dispensing chemists were promptly paid 75 per cent. on their claims. This was the most that could be got out of the funds allotted for that purpose. But as in the ensuing quarter there was much less sickness and the novelty of the Act was beginning to wear out, the number of prescriptions that had to be made up was not so considerable. It is consequently anticipated that by the end of the year the account will be balanced or that there will be only a small deficit. But the chemists now claim an extra penny for poisons, and there was some trouble about the inferior quality of the bandages. However, the Medical Committee discovered a manufacturer who supplied good bandages at a sufficiently low figure and the chemists now know where to get what they require, a facility of which they readily make good use. The patients no longer complain that the bandages break. But the difficulty in regard to some of the drugs is not so easy to arrange. After the last amended list of prices was drawn up quinine rose from 1*s* 5*d*. to 2*s*.; senna and mustard rose from 1*d*. to 1½*d*. the ounce. Croton oil and sandal oil have also gone up; large quantities of the latter are required in all great seaports. Nevertheless, and in spite of these difficulties, the Insurance Committee and its secretary consider that good headway has been made and that the Act is working well.

(To be continued.)

CHOLERA IN THE NEAR EAST.

(FROM THE BRITISH DELEGATE TO THE CONSTANTINOPLE BOARD OF HEALTH.)

Cholera in Constantinople and Neighbourhood.

THE small outbreak of sporadic cholera mentioned in my last letter on the subject (published in THE LANCET of June 14th last, p. 1697) came to an end, as there stated, on April 25th. Clean bills of health were issued from May 4th. For the next three months the city seems to have been free from the disease; but on August 5th 2 imported cases, 1 of which proved fatal, were recorded. From August 20th indigenous cases began to occur. Single cases were reported on August 20th, 21st, 25th, and 28th and on Sept. 2nd. On the 3rd 9 cases with 3 deaths were registered; of these, 7 cases occurred in a lunatic asylum at Scutari, on the Asiatic side of the Bosphorus. It is of interest to note that this asylum furnished a considerable number of cases during the epidemic of cholera in 1893. Since Sept. 3rd several further cases have been seen, both in the asylum and in different parts of the city. In all, 25 cases with 15 deaths have been registered down to the 10th inst.; 2 have been cured and

The Devon County Council and the Question of Venereal Disease.

At the last meeting of the Devon county council, held under the presidency of Earl Fortescue, Dr. R. Hogarth Clay, of Plymouth, moved a resolution calling upon the Government to give immediate consideration to the resolution passed at the recent International Medical Congress on the question of venereal disease. Earl Fortescue, who spoke in favour of the proposal, said that the resolution at the International Medical Congress appeared to him to indicate a desire to apply the principles of notification to venereal diseases, and to give facilities for the better diagnosis of these complaints, and he thought this suggestion would meet with the sympathy of most people. Dr. Clay's resolution was agreed to, and it was resolved to send copies to the Prime Minister, the President of the Local Government Board, and also to the county councils of England and Wales, inviting them to pass a similar resolution.

The Devon Education Committee and the Medical Treatment of School Children.

At the last meeting of the Devon county council the education committee reported that it was in correspondence with the Board of Education in reference to a scheme for the medical treatment of school children, but that in view of recent legislation it had referred the matter back to the special subcommittee to consider whether it was now desirable to modify the scheme in any way.

Proposed Salaries for the Medical Staff of the Plymouth Public Dispensary.

The committee of the Plymouth Public Dispensary has issued a report to the subscribers of that institution recommending that (with the exception of the honorary consulting medical staff) the medical staff shall be salaried. The committee suggests that three "general practitioners" (to be elected annually and to become ineligible after six years' service) shall constitute the medical staff of the dispensary, the senior of which shall receive £80 per annum, and the two other officers each £70 a year. A special meeting of the governors of the charity will shortly be held to consider the report, when it is expected that the recommendation of the committee will be adopted.

Health of Cornwall in August.

The medical officer of health of the county of Cornwall reports that the mean temperature was a little below the normal for August, and sunshine above the average. The general death-rate was 11·42 per 1000, compared with 10·94 for August, 1912. Twelve deaths were due to zymotic diseases. 106 cases of infectious disease were notified during the month. Three cases of poliomyelitis were reported, one each from Helston rural district, Launceston borough, and Looe. The birth-rate was 21 per 1000, the same as in August, 1912.

Death caused by Eating Yew Berries.

A coroner's inquiry was recently held upon the death of a man, aged 47 years, an imbecile patient at the Stapleton (Bristol) workhouse. Evidence showed that the deceased had been eating yew berries. Post-mortem examination proved that death was due to "acute intestinal inflammation produced by eating yew berries," and a verdict to that effect was returned.

Obituary.

Through the death on Sept. 19th, in his eighty-ninth year, of Mr. James Williams at Holywell, Flintshire, there has been removed one of the oldest and best-known medical practitioners in North Wales. Mr. Williams received his medical education at the Liverpool Royal Infirmary and St. Bartholomew's Hospital, London, qualifying as M.R.C.S. in the year 1848 and taking the L.S A. in the following year. After acting as house surgeon to the Warrington Infirmary and Dispensary he practised in Holywell and early became connected with the Flintshire Dispensary and Cottage Hospital in that town, to which he was attached as honorary surgeon until quite recently. For over 50 years he was one of the district Poor-law medical officers of the Holywell union, and for over 30 years one of the medical officers of health of the Holywell rural district. In 1868 he was president of the North Wales branch of the British Medical Association. At one time he acted as surgeon to the Cheshire Artillery Volunteers. He took an active part in the public life of the town, being twice chairman of the local board of health and the first chairman of the urban district council on its formation in 1895, holding the office for three years. Mr. Williams leaves two daughters and two sons, one of the latter, Mr. Herbert W. S. Williams, having been associated with him in his practice.—The death of Dr. John Albert Nunneley occurred recently at his residence in Bath. He was the son of the late Mr. Thomas Nunneley, F.R.C.S. He received his medical education at Leeds, Guy's Hospital, and in Paris, and qualified as M.R.C.S. in 1863. He took the M.B. Lond. in 1864. The deceased, who had been for 30 years on the honorary surgical staff of the Leeds General Infirmary, was at one time lecturer on anatomy at the Leeds Medical School, senior surgeon to the Leeds Eye and Ear Infirmary, and lecturer on ophthalmic diseases at the Yorkshire College and Victoria University. Since his retirement Dr. Nunneley had resided at Bath, where he was highly esteemed. He took great interest in the medical charities of the city, was elected a governor of the Royal Mineral Water Hospital in 1901, and was also connected with other Bath institutions.—The death of Mr. George William Pauli occurred recently at his residence in Weston-super-Mare in his forty-fifth year. He was a son of Mr. Churton Pauli, surgeon to the Bristol City Hospitals, and received his medical education at the Bristol Medical School. He qualified as L.R.C.P. & S. Edin. and L.F.P.S. Glasg. in 1899. Shortly afterwards he commenced practice in Birmingham, and about four years ago went to Weston-super-Mare, where he was highly esteemed. Mr. Pauli had never enjoyed good health, but his kindness and genial manner made him very popular. He leaves a widow and child, for whom much sympathy is felt.

Sept. 23rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Sanatorium Benefit.

A MEETING of the Sanatorium Benefit Subcommittee of the Edinburgh Insurance Committee was held recently, at which a statement was made as to the communications which had passed between the subcommittee and the Scottish Insurance Commissioners with regard to the estimate for the treatment of tuberculous subjects under the National Insurance Act for 1913–14. The following is the estimate of the subcommittee:—*Expenditure of Insurance Committee:* Hospital treatment, 200 beds at £65, £13,000; domiciliary treatment, 105,000 at 6*d*., £2625; additional domiciliary treatment for dependents and medicines, &c , to insured persons, £800; dispensary and officers, £1000, less £100 charged to administrative expenses, £900—£17,325. *Revenue of Insurance Committee:* For hospital treatment, 105,000 at 9*d*., £3937, but say £4000; for domiciliary treatment, £2625—£6625; deficit £10,700. This estimate has been approved by the Insurance Commissioners, with the express provision that the item of £800 "for additional domiciliary treatment for dependents and medicines, &c., to insured persons" includes the provision of medical comforts. The estimate runs from Jan. 13th of the current year to Jan. 12th, 1914.

A Limit to the Names on the Panel.

At Dundee the Local Medical Committee under the National Insurance Act have taken a highly suggestive step. They have recorded as the opinion of a majority of their body that the maximum number of insured persons that can be adequately cared for by a practitioner on the panel is 2000. The Dundee Insurance Committee, to whom a report to this effect was made by the Local Medical Committee, saw clearly that they could take no action in the matter, the formation of the panel lists being definitely provided for under the Act, and no limitation to the number of persons on any one such list being suggested. The chairman of the meeting, while pointing out that the committee had no power of compulsion in the matter, thought they should adopt a motion which he had proposed three months previously, that practitioners who had more than 2000 names on their list should take means to reduce it to 2000 or less at an early opportunity. It was, however, suggested that as nothing could be done till January next the panel doctors might be invited to confer on their views of a satisfactory arrangement. This was agreed to. It was clearly the view of the Dundee Insurance Committee that it was prejudicial to the best working of the Act that any practitioner should be responsible in accordance with the Act for more than 2000 persons, and this is the opinion, I believe, of quite as many medical men as laymen.

The late Dr. Gavin Tennent.

The medical profession and the general public of Glasgow and the West of Scotland have lost a good friend by the death of Dr. Gavin P. Tennent, which occurred on Sept. 13th. Gavin Tennent, who was the only son of Mr. James Tennent, was born at Strathaven in 1846. He was educated at a country school in the parish of Avondale, going from there to the University of Glasgow. He graduated as M.B., C.M., with "high commendation," after waiting several months on account of the fact that on passing his final examination he was under 21 years of age. He then went to Berlin to continue his medical studies, and on his return to Glasgow was appointed resident assistant in the Royal Infirmary, where he came under the influence of Lister and Gairdner. He left the Royal Infirmary to become resident physician to the Glasgow City Fever Hospital, and in his work there he was intimately associated with the late Dr. J. B. Russell. In 1872 he commenced private practice, and at first assisted the late Professor Leishman, sharing with him the duties of medical officer to the Duke-street Prison. He took his M.D. degree in 1870, and five years later was admitted a Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow. From 1868 to 1880 Dr. Tennent assisted Dr. J. B. Cowan in the performance of his duties as professor of materia medica at the University. When the Western Infirmary was opened in 1874 he became physician for out-patients, and in 1881 he was elected a full physician in charge of wards. He continued in this position till 1896, when he resigned owing to the increasing demands made upon his time by the claims of his consulting practice, and at that time the directors, to mark their appreciation of his 22 years' service to the institution, made him the first honorary consulting physician to the infirmary. To within a few months of his death Dr. Tennent conducted a large consulting practice, and he possessed in a very large degree the confidence of the medical profession and the public. In the University and at the Western Infirmary he was a most successful teacher, and attracted students by his earnestness and thoroughness and also by his rare clinical insight. As a man Dr. Tennent was much esteemed by all, and many of the younger members of the profession found in him a sympathetic friend and wise counsellor. Dr. Tennent was unmarried and was the last surviving member of his own immediate family.

Sept. 23rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Medical Advisers for Dublin.

IN June last the Irish Insurance Commissioners announced the appointment of some dozen or so medical practitioners as medical advisers in respect of insured persons in the city and county of Dublin. Their duties and salaries were to begin from July 1st. It is understood that their salaries did begin from that date, but their duties were only arranged last week. It appears, therefore, that for some eleven weeks public money has been given gratuitously to these gentlemen for no other reason than to pretend to the Treasury that a scheme for the certification of insured persons was in working order. At its last meeting the Dublin County Borough Insurance Committee expressed its dissatisfaction with the arrangements made by the Commissioners for the certification of deposit contributors. The practitioner appointed as medical adviser in this respect lives a considerable distance from the county borough area. Moreover, among his duties is the certification of insured persons resident in the county Dublin some 20 miles from the city. The scheme as submitted by the Commissioners to the Insurance Committee is as yet quite incomplete, some of the more important societies not being provided for.

Post-Graduate Courses in Dublin.

The post-graduate courses of study arranged by Trinity College and the Royal College of Surgeons both began this week. Each College arranges for one course of three weeks in the year, and by a stupid arrangement the courses run concurrently. This can hardly be due to any special suitability of the period of year for the work. To clinical teachers no more inconvenient time could be chosen. The hospital wards are only opening after their annual cleaning, and it is not possible so early in the session to have at hand a supply of interesting clinical material.

Medical Man Appointed Magistrate.

The Lord Chancellor has appointed Mr. Michael J. Kenny, of Bridge House, Tallow, to the commission of the peace for the county of Waterford.

Royal Victoria Hospital, Belfast.

The usual bi-monthly meeting of the board of management of the Royal Victoria Hospital, Belfast, was held on Sept. 17th, exactly ten years after the new hospital was opened, and the following interesting retrospect was put before those present: In 1902, the year before removal to the present splendid buildings, which were opened by King Edward, there were admitted as in-patients to the old hospital 2458, while there were 24,255 extern cases and 859 operations. A decade afterwards, in 1912, in the new Royal Victoria Hospital there were 3457 intern and 32,658 extern patients and 1611 operations were performed. In 1902 the average daily number of patients under treatment was 156·2, while in 1912 it was 225·9. These figures are very striking, and demonstrate what splendid work the hospital is doing.

Scarlet Fever in Belfast.

Scarlet fever, which began in an epidemic form in Belfast in the autumn of 1909, and which has continued during 1910, 1911, and 1912 (when there were 916 cases notified, being 150 in excess of the number notified in 1911 and 291 in excess of the number notified annually during the 10 years 1902–11), is, unfortunately, s[illegible] form, as it was stated at [illegible] committee held on Sept. [illegible] Sept. 13th 57 fresh cases of scarlet fever had been reported (there were 44 in the previous week).

Rainfall in 1912 in Ulster.

From "British Rainfall, 1912" (by Hugh Robert Mill and Carle Salter), I find that 1912 was the wettest season in Ulster for many years. In Ballymena, a town 150 feet above sea-level, where rain fell on 246 days to the extent of 53·08 inches, 1912 was the wettest year for 36 seasons. At Newcastle, co. Down, near the Mourne Mountains, the rainfall in 1912 was 67·15 inches. In Belfast the amount of rainfall in 1912 varied from 42 to 46 inches, the average being 44·43 inches; this is distinctly above the usual average for Belfast, which is about 34 inches.

Sept. 23rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Micro-organism of Rabies: Professor Noguchi at the Institut Pasteur.

Professor Noguchi, of the Rockefeller Institute, New York, who has been acclaimed in the press of the world as the discoverer of the micro-organism of rabies, has arrived in Paris to spend a few days, and has demonstrated his cultures and shown the protozoal cause of the disease to his *confrères* of the Institut Pasteur. He referred to the fact that his discovery was published simultaneously in a French journal, the *Presse Médicale*, and in the *Annals* of the Rockefeller Institute. Since Sept. 11th, in the research laboratories directed by Professor Metchnikoff, Professor Noguchi has demonstrated by the ultra-microscope the many sections he has which contain the granular corpuscles of rabies. The Japanese *savant* is surrounded by all the real researchers in Paris. He is short of stature, slim, and agile, with prominent cheekbones. His left hand was damaged by gunpowder when he was a child, only the thumb, and but half of that, remaining, yet he uses the hand with remarkable facility. He is a

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The medical officer of health of the county of Cornwall reports that the mean temperature was a little below the normal for August, and sunshine above the average. The general death-rate was 11·42 per 1000, compared with 10·94 for August, 1912. Twelve deaths were due to zymotic diseases. 106 cases of infectious disease were notified during the month. Three cases of poliomyelitis were reported, one each from Helston rural district, Launceston borough, and Looe. The birth-rate was 21 per 1000, the same as in August, 1912.

Death caused by Eating Yew Berries.

A coroner's inquiry was recently held upon the death of a man, aged 47 years, an imbecile patient at the Stapleton (Bristol) workhouse. Evidence showed that the deceased had been eating yew berries. Post-mortem examination proved that death was due to "acute intestinal inflammation produced by eating yew berries," and a verdict to that effect was returned.

Obituary.

Through the death on Sept. 19th, in his eighty-ninth year, of Mr. James Williams at Holywell, Flintshire, there has been removed one of the oldest and best-known medical practitioners in North Wales. Mr. Williams received his medical education at the Liverpool Royal Infirmary and St. Bartholomew's Hospital, London, qualifying as M.R.C.S. in the year 1848 and taking the L.S A. in the following year. After acting as house surgeon to the Warrington Infirmary and Dispensary he practised in Holywell and early became connected with the Flintshire Dispensary and Cottage Hospital in that town, to which he was attached as honorary surgeon until quite recently. For over 50 years he was one of the district Poor-law medical officers of the Holywell union, and for over 30 years one of the medical officers of health of the Holywell rural district. In 1868 he was president of the North Wales branch of the British Medical Association. At one time he acted as surgeon to the Cheshire Artillery Volunteers. He took an active part in the public life of the town, being twice chairman of the local board of health and the first chairman of the urban district council on its formation in 1895, holding the office for three years. Mr. Williams leaves two daughters and two sons, one of the latter, Mr. Herbert W. S. Williams, having been associated with him in his practice.—The death of Dr. John Albert Nunneley occurred recently at his residence in Bath. He was the son of the late Mr. Thomas Nunneley, F.R.C.S. He received his medical education at Leeds, Guy's Hospital, and in Paris, and qualified as M.R.C.S. in 1863. He took the M.B. Lond. in 1864. The deceased, who had been for 30 years on the honorary surgical staff of the Leeds General Infirmary, was at one time lecturer on anatomy at the Leeds Medical School, senior surgeon to the Leeds Eye and Ear Infirmary, and lecturer on ophthalmic diseases at the Yorkshire College and Victoria University. Since his retirement Dr. Nunneley had resided at Bath, where he was highly esteemed. He took great interest in the medical charities of the city, was elected a governor of the Royal Mineral Water Hospital in 1901, and was also connected with other Bath institutions.—The death of Mr. George William Pauli occurred recently at his residence in Weston-super-Mare in his forty-fifth year. He was a son of Mr. Churton Pauli, surgeon to the Bristol City Hospitals, and received his medical education at the Bristol Medical School. He qualified as L.R.C.P. & S. Edin. and L.F.P.S. Glasg. in 1899. Shortly afterwards he commenced practice in Birmingham, and about four years ago went to Weston-super-Mare, where he was highly esteemed. Mr. Pauli had never enjoyed good health, but his kindness and genial manner made him very popular. He leaves a widow and child, for whom much sympathy is felt.

Sept. 23rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Sanatorium Benefit.

A MEETING of the Sanatorium Benefit Subcommittee of the Edinburgh Insurance Committee was held recently, at which a statement was made as to the communications which had passed between the subcommittee and the Scottish Insurance Commissioners with regard to the estimate for the treatment of tuberculous subjects under the National Insurance Act for 1913–14. The following is the estimate of the subcommittee:—*Expenditure of Insurance Committee:* Hospital treatment, 200 beds at £65, £13,000; domiciliary treatment, 105,000 at 6*d*., £2625; additional domiciliary treatment for dependents and medicines, &c , to insured persons, £800; dispensary and officers, £1000, less £100 charged to administrative expenses, £900—£17,325. *Revenue of Insurance Committee:* For hospital treatment, 105,000 at 9*d*., £3937, but say £4000; for domiciliary treatment, £2625—£6625; deficit £10,700. This estimate has been approved by the Insurance Commissioners, with the express provision that the item of £800 "for additional domiciliary treatment for dependents and medicines, &c., to insured persons" includes the provision of medical comforts. The estimate runs from Jan. 13th of the current year to Jan. 12th, 1914.

A Limit to the Names on the Panel.

At Dundee the Local Medical Committee under the National Insurance Act have taken a highly suggestive step. They have recorded as the opinion of a majority of their body that the maximum number of insured persons that can be adequately cared for by a practitioner on the panel is 2000. The Dundee Insurance Committee, to whom a report to this effect was made by the Local Medical Committee, saw clearly that they could take no action in the matter, the formation of the panel lists being definitely provided for under the Act, and no limitation to the number of persons on any one such list being suggested. The chairman of the meeting, while pointing out that the committee had no power of compulsion in the matter, thought they should adopt a motion which he had proposed three months previously, that practitioners who had more than 2000 names on their list should take means to reduce it to 2000 or less at an early opportunity. It was, however, morphine, paraldehyde, sulphonal and its homologues whether by any trade name, mark, or designation. The regulation does not apply to liniments or preparations for external uses only.

Compulsory Vaccination in Queensland.

The Home Secretary for Queensland has now approved of additional regulations promulgated by the Commissioner for Public Health under the Public Health Act, with special reference to the suppression of small-pox as well as checking the spread of certain other diseases. The powers given to the Commissioner to authorise house-to-house inspections, and the medical examination of the inmates, if necessary, are again included. Power is given to isolate infected or suspected premises until the examination and (if required) effective inoculation prescribed have been made. Force may be used to prevent persons from leaving such premises. It is provided that any health officer or authorised medical practitioner shall have the following powers in dealing with persons in contact with disease or suspected disease: (*a*) For the purpose of observing whether they are suffering or are likely to suffer from an epidemic disease he may order that they shall be detained for such period and at such place and under such conditions as he may direct, subject to the approval of the Commissioner. (*b*) In the case of small-pox he may inoculate any person so detained with glycerinated calf lymph or other lymph proper for the purpose; and if such person is required to be inoculated as aforesaid, until he has been effectively inoculated; or (*c*) after disinfection of the person, clothing, and personal effects of such person, and of the premises in which such person resides, or any of these, and if such person is required to be inoculated as aforesaid, after he has been effectively inoculated, he may discharge such person upon condition that he reports himself to a medical practitioner approved by the Commissioner, and submits to inspection and examination by a medical practitioner for such period, and at such intervals, places, and times as the Commissioner or health officer shall direct. Where a person is suffering from an epidemic disease there is power to order his removal to an isolation hospital or isolate him or her at home. Power is given to vaccinate prisoners, using force if necessary.

August 20th.

H.H. Prince Alexander of Teck will distribute the prizes to the students of the Royal Dental Hospital of London and London School of Dental Surgery on Tuesday, Oct. 7th, at 5 P.M.

LITERARY INTELLIGENCE.—Dr. Jacques Loeb, head of th [illegible] Rockefeller [illegible] panion worl [illegible] which attrac [illegible] entitled "Artificial Parthenogenesis and Fertilisation." It will be issued during the autumn by the Cambridge University Press as British agents for the University of Chicago Press. The subject of the book is an analysis of the mechanism by which the male [illegible] causes the animal egg to [illegible] Katzenstein, who presides over [illegible] the Nose and Ear Clinic at [illegible] publishing, through Mr. S. Karg [illegible] for Experimental and Clinical Phonetics" (a supplement to Passow's and Schaefer's Contributions), of which one volume will consist of three or four parts, and of which the price will be 24 marks. As in certain medical centres phonetic laboratories and out-patient departments have now been officially established, it has been felt that a publication which should collect and collate work relating to phonetics would [illegible] fifth edition of have a proper [illegible] eatment" is Dr. I. Burney [illegible] revision has announced by [illegible] and Dr. E. been carried [illegible] author in the Farquhar Buz [illegible] is intimated fourth edition.—[illegible] a copy of a new work to be her willingness to receive a copy of a new work to be published by the St. Catherine Press for the National Food Reform Association, entitled "Rearing an Imperial Race," and edited by Charles E. Hecht, M.A. The volume pu[illegible] to supply a key to forthcoming legislation from the [illegible] point of health and the domestic arts.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Concluded from p. 900.*)

THE meeting of the British Association which came to an end on Wednesday, Sept. 17th, was a very successful one.

Besides the sectional meetings addresses also were delivered on the evenings of Friday, Sept. 12th, and Tuesday, Sept. 16th, respectively, by Sir Henry Cunynghame, K.C.B., on Explosions in Mines and the Means of Preventing Them, in which he showed that the mixture of a certain proportion of stone dust with the coal dust rendered explosions almost impossible; and by Dr. G. Smith Woodward, F.R.S., on Missing Links among Extinct Animals. There were, further, five "citizens'" lectures delivered of a more rudimentary character to non-members of the Association at the Digbeth Institute, respectively on the Decorative Art of Savages, by Dr. A. C. Haddon, F.R.S; the Panama Canal, by Dr. Vaughan Cornish; Recent Work on Heredity in Relation to Man, by Dr. Leonard Doncaster; the Microscopic Structure of Metals, by Dr. W. Rosenbaum; and Radioactivity by Dr. F. W. Soddy, F.R.S. These lectures are proving an increasing means of stimulating popular interest in scientific work and research.

It was decided to hold the meeting of 1915 in Manchester, and that of 1916 in Newcastle-on-Tyne, for the fourth time in each case. Next year's meeting will take place in Australia under the presidency of Professor William Bateson, F.R.S., [illegible] The vacancy [illegible] eath of Lord [illegible] A. Macmahon, one of the general secretaries, to whom a cordial vote of thanks was accorded for his 11 years' service, who was succeeded in that post by Professor H. H. Turner. The following new members of council were appointed: Professor W. H. Bragg, F.R.S., of Leeds University: Dr. F. A. Dixey, F.R.S., of Oxford; Mr. A. Lodge, of Birmingham University; Professor H. H. Dixon, F.R.S., of Dublin University; and Sir Everard Im Thurn.

Grants amounting to £1286 for the scientific purposes of the sectional committees were decided on.

Origin and Nature of Life.

Professor J. REINKE, Ph.D., in a thoughtful paper before the joint session of the Sections of Zoology, Botany, and Anthropology, discussed the questions—What is the nature of life? and How is it to be explained? Considering the question of whether life ought to be interpreted merely mechanically, he said a plant and an animal ought to be mechanisms, machines, nothing else, but of so complicated a construction that analysis is even yet unable to explain this merely mechanical machinery. In still older times people believed a *vis vitalis* to be active in the organism that did not accord with any other power in nature and that caused life. But this *vis vitalis* came more and more into contradiction with the principles of science until at last the contrary doctrine arose, that life was only a complicated example of the processes predominant in lifeless nature. This opinion was founded on the knowledge that plants and animals are composed of chemical combinations known also outside the organisms; that these combinations influence one another according to the universal chemical laws; that everywhere in the living body physical powers are active. In this manner physiology becomes the chemistry and physics of organisms. [illegible] more we understand that a [illegible] analysis is impossible for any [illegible] Behind all the physico-chem[illegible] logical studies an [illegible] solved by levers and [illegible] part he refused [illegible] mechanical [illegible] to the [illegible] dominion of lifeless nature only parallels for the explanation of life. He was sure that the laws of energy are valid in the organism as well as in unorganised nature, and that the change of matter and of power in animals and plants depends only on them. Life is based upon such transformations of energy —"Elementarprozesse"—and these elementary processes are bound to elementary mechanisms in the cells of animals and plants. These elementary processes and elementary mechanisms are not thrown together without order in the living body; they are united by an invisible string or chain, and this invisible chain or force that maintains the order among the elementary processes represents the true difference between life and any event in lifeless nature. Life, he concluded, has its own laws as well as light, heat, chemistry; which does not exclude the fact that the physico-chemical laws reign in the elementary processes of a living body.

Professor Benjamin Moore and Dr. Arthur Webster contributed an interesting paper on the Synthesis of Organic Matter by Sunlight in Presence of Inorganic Colloids and its Relationship to the Origin of Life. They pointed out that the whole world of living plants and animals depends for its present continuance upon the synthesis of organic compounds from inorganic by the green colouring matter of the plant acting as a transformer of light energy into chemical energy. A little reflection, they said, shows that this present state of affairs must have evolved in complexity from something more simple existing at the commencement. For chlorophyll, which now acts as the transformer, is itself one of the most complex of known organic substances, and could not have been the first organic substance to evolve from inorganic matter. In considering the origin of life, the start must be made in a purely inorganic world without a trace of organic matter, either plant or animal. As Schäfer has pointed out, any other supposition merely removes the seat of origin to some conveniently remote planet, and pushes the origin back farther in time, but brings us no nearer to a real solution. The earlier theories and views as to spontaneous generation all possess the error of attempting to start life amidst organic nutritive material which could not be there until life had already appeared. The complex organic substances, such as carbohydrates, fats, proteins, and all the many other organic cell constituents, are late products along the line of evolution of life, and the beginning lies at a level much below that of the bacterium or diatom. As a result of about 18 months of experimental work, they have, they believe, obtained evidence of the first organic step in the evolution. When dilute solutions of colloidal ferric hydroxide, or the corresponding uranium compound, are exposed to strong sunlight, or the light of a mercury arc, there are synthesised the same organic compounds which are at present formed as the first stage in the process of organic synthesis by the green plant—namely, formaldehyde and formic acid. If, now, we consider a planet exposed to the proper conditions of temperature and sunlight, that chain of events can be followed, which not only can but must occur. At first, as the planet cools down, only elements would be present, at a lower temperature binary compounds form, next simple crystalloidal salts arise. Then, by the union of single molecules into groups of 50 or 60, colloidal aggregates appear. As these colloidal aggregates increase in complexity, they also become more delicately balanced in structure, and are meta-stable or labile—that is, they are easily destroyed by sudden changes in environment, but, within certain limits, are peculiarly sensitive to energy changes, and can take up energy in one form and transform it into another. These labile colloids take up water and carbon dioxide, and, utilising the sunlight streaming upon the plant, produce the simplest organic structures. Next these simpler organic structures, reacting with themselves, and with nitrogenous inorganic matter, continue the process and build up more and more complex, and also more labile, organic colloids, until finally these acquire the property of transforming light energy into chemical energy. The problem of the origin of life hence acquires, in their view, the aspect of an experimental inquiry with vast opportunities for obtaining more exact knowledge. From this first step in the organic synthesis advance must be made to study how more and more complex organic compounds can be evolved. But it is clear, they concluded, that by the continued action of this "law of molecular complexity" life must originate, that forms of life are now originating, that the origin of life was no fortuitous accident, and that the same processes are guiding life onwards to higher evolution in a progressive creation.

The Effect of Low Temperatures on Cold-blooded Animals.

To the Section of Physiology the committee, consisting of Professor Swale Vincent (chairman) and Mr. A. T. Cameron (secretary), presented its report (drawn up by the secretary) stating that Messrs. Cameron and Brownlee had carried out experiments on frogs (*R. pipiens*). They froze at a temperature of 0·44°–0·02° C., in a manner very similar to that of solutions isotonic with their body fluids. They would survive a temperature of – 1° C., but not one of – 1·8° C. The heart tissue, whether exsected or *in vivo*, of these frogs survived a temperature of – 2·5°, but was killed by one of – 3·0° C. Other observers had shown that frogs' muscular tissue would survive a temperature of – 2·9° C., while the peripheral nerves were not killed by much lower temperatures. Hence the cause of death was probably connected with a specific temperature effect on the brain or cord. Full details of these results would shortly be published, and the committee requested to be reappointed with a grant of £10.

Dr. Dawson Turner read a paper in the same section on Radium Rays in Thyroid Hypersecretion, which is published in full in our present issue (p. 924).

Reasoning Tests for the Mental Diagnosis of Children.

Mr. W. H. Winch, in the Subsection of Psychology, offered an additional series of tests supplementary to those presented to the British Psychological Society on May 6th, 1911. The tests consisted of series of statements propounding a simple problem in intelligence, to be presented in writing to the children and read without undue emphasis by a person whose voice and accent are familiar to the children. As an example the following (No. 4 in Set 5) is quoted: "If more than half the boys in a class get all their sums right, and more than half the boys in the same class get no mistakes in dictation, do you think there were any boys who got all their sums right and also no mistakes in dictation, or do you think there were no boys who got all their sums right and also no mistakes in dictation, or can't you tell? You must say why." The methods of marking were described. It was claimed that these tests help to measure the higher mental faculties, and not being taught in schools form a good measure of the pupil's natural ability as distinct from the school's pedagogic proficiency. They indicate subnormality or backwardness, and assist in grading pupils on a basis of natural ability. They may help in distinguishing mental differences, if any, between boys and girls and the different levels of mental ability in schools of different "social class," and in selecting scholarship children. The results of the tests correlate fairly with age and still more closely with mental proficiency as indicated by "school standards." They show a considerable difference in reasoning ability among children of different social classes, and that the difference between boys and girls in non-numerical reasoning is only slightly in favour of the boys. The pedagogical efficiency of schools has very little bearing on the results of these tests.

Colour Perception in Children.

Mr. C. W. Valentine, in the same subsection, read an interesting communication on his observations of a three months old child regarding its perception of and preference for colour. The observations, which extended over a period of four weeks, consisted in measuring the periods during which the child looked at either of two coloured wools displayed simultaneously before him for two minutes. It was noted that while the brightest colours were preferred in general, some other factor of choice must exist, for the order of preference shown by the child was yellow, white, red, pink, brown, black, green, violet, and blue. Mr. Valentine's suggestion was that the capacity of colours for stimulating muscular strength, which according to Féré was greatest at the warm end and weakest at the cold end of the spectrum, was a possible determining factor.

A Preliminary Note on Habit-formation in Guinea-pigs.

Miss E. M. Smith (Cambridge), in the same subsection, described some observations carried out under the direction of Dr. Myers at the Cambridge Psychological Laboratory this year, forming part of a larger scheme to test the inheritability in guinea-pigs of such characters as rapidity of learning, ability to profit by practice, accuracy of per- [illegible]

points of interest concerning guinea-pig behaviour, tending to show the superiority of the females over the males in the matter of reliability and accuracy as regards both the maze test and the sensory discrimination test.

A New Theory of Laughter.

Dr. W. McDOUGALL reviewed the problems presented by laughter to the great thinkers, from Aristotle to Bergson, discussing the various theories enunciated, and suggested that laughter was primarily and fundamentally the antidote to sympathy, preventing us from dwelling unduly on the depressing influences that surrounded us. While the sympathetic tendencies of the species were of the first importance for social life, it would have been a serious disadvantage to the species if each man had had to suffer sympathetically, in however small a degree, all the minor pains of his fellows, which would overwhelm him with their cumulative force. Nature had solved the problem of the necessity of making each man continue to share in some degree all the more intense feelings of his fellow men, by sparing him the needless suffering that would have been entailed by his sharing also their multitudinous lesser pains, and the faculty of laughter was, therefore, a protective one.

The Evolution of Man from the Ape.

Professor CARVETH READ, in the Section of Anthropology, read a paper on the Differentiation of Man from the Anthropoids. He attributed man's evolution to his taste for animal food enabling him to wander beyond the confines of the forest, which led him to associate with others in pursuit of game. A consequently more regular food-supply would put an end to the seasonal relation between fruit time and the marriage- and birth-rate. Articulate speech would arise from coöperation. The upright position, with its effect on the alimentary canal, would be due to its advantage as a hunting posture, and the increased difficulty of catching a rabbit over plucking a banana would give rise to an increase in intelligence and the evolution of weapons and snares. Cannibalism was not generally associated with flesh eating, but was to be regarded as belonging to the [illegible] ment.

[illegible] the factors in man's [illegible] that evolving man like his anthropoid ancestor was polygamous The man with the best physique and the largest intellectual endowment secured the largest offspring to inherit these endowments. Man's upward evolution had taken place essentially through bloodshed. The factors influencing the moral evolution of mind were the restrictions and obligations of communal life and motherhood, from which the altruistic sentiment took its rise.[1]

Living Cultures of the Embryonic Heart on the Kinematograph.

Professor H. BRAUS in the Section of Zoology exhibited on the kinematograph certain delicate phenomena of movement that were too rapid or too slow for simple inspection. The beating heart of a frog larva (Rana esculenta) 6 mm. long, perceivable only as a dot on a black background, was shown by magnifying it. It was an S-shaped tube. It was seven days old when photographed, but the rate of pulsation was about 80 per minute as on the first day. The movement was peristaltic, pulsation of sinus, atrium, ventricle, and bulbus [illegible] for ten hours. As these are [illegible] in a few minutes they increase in thickness, amœboid movements, and so forth, appearing to take place rapidly. The heart has no ganglion cells at either the beginning or the end of the experiment, and nerves proper are still a long way off. It consisted of two epithelial membranes, the cells lying in a compact layer. The heart cultivated *in vitro* possesses at first no cross striping and no microscopically distinguishable muscle cells, so the stimulus cannot be conducted by muscle; yet there is conveyance of stimulus, as shown by disturbances of coördination. The protoplasmic links between the cells must therefore be the conductors of stimulus.

The Morphology of the Mammalian Tonsil.

Miss M. L. HETT, in the same section, said that tonsils were normally present in most mammalian orders. Except in man they did not atrophy till extreme old age. She described Hammar's division of animal tonsils into primary and secondary, according as to whether lymphoid tissue was laid down in the tuberculum tonsillare or not, and discussed the difficulties presented by this classification. Investigation of many tonsils showed a distinctive gross anatomy for each animal group, characteristic always of the order, frequently of the family, sometimes of the genus.

The Problem of Sleeping Sickness.

Professor E. A. MINCHIN in the same section discussed Some Aspects of the Sleeping Sickness Problem. After describing the trypanosome and its life-history, he gave a picture of the symptoms caused by its growth in the human subject. The symptoms showed themselves in two periods—the first characterised by irregular fever and swollen lymphatics, especially in the neck, the second corresponding to the invasion of the nervous system by the parasites by way of the lymphatics to the cerebro-spinal fluid. With the second stage drowsiness, lethargy, and emaciation set in. The two periods varied in length, but the milder the disease the longer was the first period, and in West Africa the second stage was sometimes never reached at all, and persons might live a more or less normal life with trypanosomes in their blood. The tsetse flies which conveyed the parasite were not infective until the parasite reached the fly's salivary glands. This full development took place in only about 5 per cent. of flies fed on infected persons. In the rest the parasites are digested by the fly. The difficulty of combating the disease was in part due to the fact that the specific trypanosomes were not confined for one part of their cycle to man, but could live and propagate in certain other animals—e.g., antelopes, and some forms of domestic stock. It was proposed to exterminate the big game, but the domestic stock would still remain. Again, extermination of [illegible] enemy, scratching up and destroying its pupa. [illegible] gallinaceous birds should therefore be protected and fresh ones, such as the Indian jungle fowl, should be imported. The keeping of domestic fowls by the natives should be encouraged.

The "Reading Optophone."

Probably one of the most remarkable inventions of modern times is the "reading optophone," exhibited on Sept. 11th by Dr. E. E. FOURNIER D'ALBE. Last year Dr. d'Albe showed at the Optical Convention in London an "optophone," whereby the blind were enabled to recognise bright lights by their conversion into sound. The "reading optophone" consists essentially of a perforated disc which revolves above an electric lamp. Above the disc is a detector of selenium interposed in circuit with a battery and telephone. The flashes of light through the perforations in the disc are transformed by the detector into noises in the telephone. The interposition of an opaque object between the disc and the detector inhibits the telephonic sound, but the interposition of a lantern slide, partly transparent and partly opaque, breaks up the sound into different combinations of notes. Printed material gives notes differing with each letter. With practice it becomes easy to read the letters interposed between the disc and the detector. Dr. d'Albe is now perfecting the instrument to make it possible for ordinary letterpress on paper to be read thereby.

CENTENARIANS.—Miss Harriett Light, of Southside, Weston-super-Mare, celebrated the 100th anniversary of her birthday last week. Weston possesses another centenarian in the person of Mrs. Cooper, of Upper Church-road.—Mrs. Waugh, of Magor, Monmouthshire, who celebrated the 100th anniversary of her birthday on August 29th, has received a congratulatory letter from the King.—Mrs Harriet Elizabeth Bignall, Elmside Estate, Exeter, has recently died, aged 100 years.

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[1] THE LANCET, May 24th, 1913, p. 1473.

Obituary.

FREDERICK WILLIAM FORBES-ROSS, M.D. EDIN., F.R.C.S. ENG., D.P.H. LOND.

Dr. Frederick William Forbes-Ross died on Sept. 18th after a period of ill-health extending over some months.

Frederick William Forbes-Ross, who was born in December, 1867, in Jamaica, was of Scottish descent, being the eldest son of Sir David Palmer Ross, C.M.G., Surgeon-General of British Guiana. He entered Dover College when 13 years of age and in weak health, but left it robust and with a thorough educational grounding that formed the basis for his future success as a medical student. He received his medical education at the University and the Royal College of Surgeons of Edinburgh, where he was adjudged gold medallist and senior prizeman in anatomy, and at University College and Middlesex Hospitals, and also in Berlin and Paris. He took the M.B., B.S. of Edinburgh University in 1889, and proceeded to the M.D. degree in 1893. In 1898 he obtained the D.P.H. of the London Conjoint Board, and in 1903 took its conjoint diploma. In the same year he became a Fellow of the Royal College of Surgeons. He was at one time civil surgeon to the Guards' Hospital, London, and surgeon to the Kensington General Hospital, besides holding appointments at the Samaritan Hospital, the North London Hospital for Consumption, and the Children's Hospital, Paddington. He invented several surgical instruments and other apparatus, among them a traveller for opening deep-seated abscesses, a pilot catheter for evacuating blood-clot from the bladder, a retainable bulldog crushing clamp for hæmorrhoids, and an inhaler for the continuous administration of oxygen. He also advocated in our columns in 1912 a method of obviating post-operative pain by the administration all over and around the site of the proposed manipulations of multiple injections of a sterilised solution of quinine and urea hydrochloride.

A personal friend writes to our columns an appreciation which well describes the manner of man Forbes-Ross was, and which accounts for his comparative failure in high professional circles: "Dr. Forbes-Ross's strong personality and extraordinary abilities must inevitably have brought him into the front rank of his profession had he not been cut off in the plenitude of his powers. The recognition which was already his due was delayed by the fact of his being a free-lance in his profession and far too outspoken in his criticism of medical red tape and his denunciations of hospital abuses and appointments. It also went against him that his name appeared so frequently and prominently in the lay press. This gave a false impression that he was a self-advertiser, but it was in reality due rather to his own overflowing vigour and the keenness of his interest in all current questions. His energy was great. He was always championing some cause or fighting some battle, discovering a new food or making an industrial invention, while at the same time satisfying the demands of a large practice built up by his own exertions and ability. He had a large *clientèle*, especially among American visitors and the theatrical profession. As a surgeon, though intensely nervous, as he himself admitted, before an operation began, he was coolness and accuracy itself when he had once begun. His absolute confidence—one might almost call it cocksureness—gave the patient that entire belief in him which goes such a long way towards cure. His communications to medical and other journals on professional subjects covered a very wide field, and included researches in tuberculosis, curvature of the spine, and general and abdominal surgery, as well as the pressing subject of cancer, on which he published a work during the last few months of his life. Other works of his were on the intestinal diseases of infants and a translation of Brück's 'Diseases and Treatment of the Nose, Mouth, Throat, and Larynx.' Besides these, his inventive genius showed itself in devising or improving various surgical instruments and appliances, including one for use in cases of abnormal delivery. So much—and how much it is!—for a short life's work. But besides and beyond achievement are personality and character, and his was a notable personality. Like most medical men, he was lavish of time and skill on the poorest patients. When called in to operate in a case which had long been in local hands, he insisted—quite openly and aboveboard—that a part of his fee should go to the local practitioner. His vehemence, and indeed his volubility, when his feelings were aroused were as pronounced as his abhorrence of shams and trickery and unfairness of all sorts was great. Possibly owing to his birth in Jamaica, he had a decided vein of superstition and what may be called uncanniness in his character, but he had a deep sense of religious conviction, though his views were in some respects erratic and altogether unconventional."

Another professional friend calls special attention to Forbes-Ross's industry and determination as evidenced by his proceeding to the English Fellowship and the Diploma of Public Health after he had been qualified for a considerable number of years. "Disheartened," he adds, "at being unsuccessful in his efforts to gain a position on the staff of a London hospital, his disappointment was followed by a vigorous attack in the press on the whole system of medical patronage in such matters, and while his language was at times somewhat extravagant and certainly imprudent in his own interest, there were flashes in it of a righteous indignation in his onslaught which might have been more effectively expressed by quieter methods. ...... He was a good, original, and successful operator, and in spite of his professional polemics had worthily gained the confidence of many friends, both professional and lay. On his death-bed he remarked to the writer of this notice, 'What I thirst for most is friendship and love,' and there is no doubt that had he been successful in gaining a position in a good hospital he would have proved himself a valuable officer and loyal colleague, and one whose fertile brain and dextrous hands were calculated to advance both the science and art of surgery."

Dr. Forbes-Ross married a daughter of Sir William Hooper, K.C.S.I., late President of the Medical Board of the India Office, and has left his widow and two children to mourn their loss.

CLARKE KELLY MORRIS, M.R.C.S. ENG., L.S.A., J.P.

Mr. Clarke Kelly Morris, who died suddenly from heart failure at his residence, Gordon Lodge, Charlton-road, Blackheath, on August 31st, at the age of 58, was the son of Dr. Edwin Morris, of Spalding, Lincolnshire, and pursued his professional studies at St. Thomas's Hospital, London, becoming a Member of the Royal College of Surgeons of England and a Licentiate of the Society of Apothecaries in 1877. He was for some time surgeon to the Johnston Hospital at Spalding, and afterwards medical officer of health for the Spalding urban district council. Subsequently he was appointed surgeon to the Royal Kent Dispensary (now amalgamated with the Miller Hospital). He was also at one time resident clinical assistant at the City of London Hospital for Diseases of the Chest. In 1886 he entered into partnership with Mr. Peter Cooper, and later was associated with Mr. Finch White and Mr. Lionel Hooper, of Westcombe Hill. He was honorary consulting medical officer to the Blackheath and Charlton Hospital, a Fellow of the Obstetrical Society, and honorary local secretary and treasurer of Epsom College. He was appointed to the commission of peace for the County of London about 12 years ago.

Mr. Morris had a large local circle of professional colleagues and friends, by whom he will be greatly missed. He leaves a widow and seven children. The body was interred at Spalding.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Paul Näcke, director of the Colditz Lunatic Asylum, Saxony. He wrote numerous works and monographs on psychiatric subjects, dealing especially with moral insanity and criminal lunacy. He was 62 years of age.—Dr. E. F. H. Diesing, a Hamburg physician.—Dr. K. Scheiffele, of Ober-Esslingen.—Dr. E Lang, senior district surgeon, of Rothwell.—Dr. K. Sigmundt, of Spaichingen, sanitary councillor.—Dr. Robert Rieder (Pasha), extraordinary professor of surgery in the University of Bonn. He was appointed in 1898 by the Turkish Government to be Inspector-General of the Turkish Military Medical Schools, and was entrusted with the duty of organising them on the German plan. He established the Haidar Pasha Military Medical School in Constantinople, and was director of the Gülhane Hospital, where he founded an Institute of Practical Medicine. After remaining in the Turkish service for about seven years, during which time he was promoted to the rank of Pasha, he returned to Germany and became surgeon to the Brothers of Charity's Hospital and Extraordinary Professor of Surgery to the University. He published numerous works on Turkey and on pathological and surgical topics and edited the works of Carl Weigert.

Correspondence.

"Audi alteram partem."

ORAL PROPHYLAXIS.

To the Editor of THE LANCET.

SIR,—Cursory observation of those one meets in the streets proves the need of the many for instruction in better oral prophylaxis, and to this end will you allow me space in your columns for the following remarks?

That a clean tooth will not decay is undeniable, and the difficulty of cleansing between closely set teeth and to the bottoms of grooves and pits where the enamel is invaginated accounts for such places having a higher percentage of decay than others more accessible to the scrubbing of the tooth brush, most usually employed to scrub on to the teeth one of the many combinations of powdered chalk and soap. That such a method is still used is due to tradition and thoughtlessness. One has only to use one of these preparations for cleansing a greasy dinner plate, soiled by the same agency as the mouth, but infinitely easier to clean, to realise the uselessness of the combination for a cavity abounding with surfaces impossible to scrub, as does the mouth. Even on accessible surfaces the immediate good obtained by such abrasive cleansing, negligible though it be, is paid for dearly in the future, as the daily loss of protective covering, where owing to its thinness or softness the enamel is rubbed away, results in the formation of sensitive areas each demanding treatment for comfort's sake. The damage is not confined to the teeth as the gums, resenting the stimulus of the daily scouring, after a time recede, leaving the neck of the tooth bare. Also, the patient's tendency to deposit salivary calculus or tartar upon the teeth is increased, as the average patient rarely rinses the mouth free from the chalky matter of the powder or paste, and this increases by chemical attraction the rate of the deposit and itself goes to form it.

One may be excused for wondering why the use of sterilised water for cleansing the mouth has not been more generally insisted upon, since few would use unsterilised water for making a hypodermic injection. It appears reasonable to assume that, if suppuration can be induced by infective hypodermic solutions, the same will happen if infective water is scrubbed on gums of weak resistance, only the process of breaking down of the gum in the latter case takes a much longer time to bring about. One has only to examine the condition of the average cistern, usually under the roof and badly covered, or well water which may have drained through from an adjacent cesspool, to admit the need of increased care in dealing with this the main avenue by which infection enters the mouth.

Ideal oral prophylaxis, then, demands that the necessary water should be sterilised, that silk should be passed between the teeth to remove food débris, and that the dentifrice should be completely soluble in water so that the mouth can be easily rinsed free from it, that it should have a solvent action on fat, the binding medium by which the agents of decay are maintained on tooth surfaces, thus allowing the bactericidal action which it should possess to operate on the actual surface of tooth or gum. It should have no harmful action on tooth tissue or gum, and should be sedative to sensitive conditions of both.

In the writer's experience of the last 12 years the following combination has proved most useful and fulfils the foregoing requirements best:—℞ Lysol pure, 6 parts; chloroform pure, 2 parts. Mix. The patient is instructed to begin using 15 drops to half a pint of sterile water, as it is stimulant to diseased gums, and if used too strong at first occasions smarting. After a few days toleration increases as the tone of the tissues improves, and the strength can be increased up to a drachm to half a pint of water. To get the best effect it should be held in the mouth, say 20 seconds for each mouthful, and should be well brushed over the teeth and top of tongue, and the mouth rinsed finally with sterile water. The brush should be rinsed clean, dried, and kept in a clean place.

In dental practice the combination, diluted as described, is recommended for use before and after extractions, for preceding scalings, to abort gingival suppuration. In a case of specific perforation of the soft palate and rhinitis of 20 years' standing I found that it worked like a charm. It should supply a ready means of ensuring oral cleanliness in schools, &c., where expense is an object.

I am, Sir, yours faithfully,
PERCY FURNIVALL, L.D.S. Eng.

New Cavendish-street, W., Sept. 20th, 1913.

THE NATIONAL INSURANCE ACT; MEDICAL BENEFIT FOR MIGRATING MEMBERS.

To the Editor of THE LANCET.

SIR,—In your note on the above subject on p. 901 of THE LANCET of this week, when stating the arrangement made for the medical treatment of insured persons away from their own district, you make no comment on the inequity and, in my opinion, illegality of the arrangement in connexion with the "green and yellow voucher." Without entering into the question as to whether the remuneration offered to the doctor is adequate or otherwise, there is a violation of one of the main principles of the Insurance Act that the medical profession cannot afford to disregard. What, I would ask, becomes of the "free choice of the doctor" under this arrangement? It amounts to a right given to every insured person out of his district to exercise a privilege not given him by the Act, or by any Regulation that has hitherto had the consent of Parliament, and which he does not even possess in his relations with his own panel doctor. Section 15 (c) and (d) of the original Act and Regulation 22 are at the present time the only authoritative enactments bearing on this point; and I must submit that under these the arrangement known as the "green and yellow voucher" cannot be legally made, and if persisted in ought to be tested in the law courts. Again, if the Commissioners under Section 65 should publish further regulations to enforce [illegible] legally, seeing that the sectio[illegible] regulations "that may be m[illegible] regulations may be lawfully made to take away a right from the profession that is directly given by the said Act—then efforts should be made in Parliament to prevent the sanctioning of such further regulations.

It seems to me that the whole of this matter could be settled in a far less objectionable manner. If the Commissioners were to instruct all Insurance Committees to prepare a list of the panel doctors in their area who were willing to accept these vouchers, and where a sufficient number could not be obtained should, in conjunction with the Local Medical Committees, select a sufficient number for the purpose, then all temporary residents out of their own areas should be required to go to one of the practitioners on that list. It seems to me that under these circumstances there would be no more interference with the free choice of the doctor than is recognised to be permissible under the provisions of the Insurance Act. Surely there is no insuperable objection to some such course as is here indicated, and it is free from many grave defects that are present in that now laid down by the Commissioners.

I am, Sir, yours faithfully,
MAJOR GREENWOOD.

Hackney-road, N.E., Sept. 20th, 1913.

A CONFERENCE OF SCHOOL MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—It is proposed to hold a meeting of assistant school medical officers and school medical officers at the offices of the Society of Medical Officers of [illegible] street, Russell-square, London, [illegible] at 4 P.M., in order that some [illegible] actually engaged in the medical [illegible] may be ventilated.

The present time is opportune on account of the matter of the grants from the Board of Education to local authorities in respect of money spent on medical inspection and treatment. The meeting will consider the advisability or otherwise of suggesting the formation of a committee of the Society of Medical Officers of Health to inquire into the matter. It is particularly desired that the meeting should be representative of all medical practitioners engaged practically in the work, irrespective of their being members of the Society of Medical Officers of Health. If those intending to be present would kindly communicate with me arrangements for the meeting would be facilitated.

I am, Sir, yours faithfully,
C. W. Hutt, M.D.,
Senior School Doctor.
7, Gloucester-place, Brighton, Sept. 22nd, 1913.

DETECTION OF SMALL AMOUNTS OF GLUCOSE IN URINE.

To the Editor of The Lancet.

Sir,—It has been my work to give two processes for estimating sugar in urine, and especially for small quantities of *sugar found in the wheat kernels and elsewhere.* One method has been by oxidising a cubic centimetre of urine by means of permanganate and taking the temperature, the other by slight caramelisation and noting the colour, or by estimating it volumetrically. These tests are known and have been published. Allow me, therefore, to remark on the concluding advice given by Mr. Sydney W. Cole in The Lancet of to-day, p. 860, with respect to the tolerance of carbohydrates. In my temperature method I found that healthy normal urine had the power of breaking up a certain quantity of both sugar and alcohol, even at ordinary temperatures, and that in such tests where 1 or less per cent. of alcohol or sugar in urine was used I could not get the full temperature or *the sum* of urine and alcohol and sugar, a part amounting to a quarter or half would be lost. Hence the "tolerance of carbohydrates" to be sought by a routine method, as advised, might well include not only how much sugar in small quantity might be there, but also what power the urine had of breaking up sugar added to the urine—whether due to the enzyme action of that trace of albumin, ever present in urine with the ferrocyanide and acetic test, or due to the other constituents of urine, or again to temperature.

I am, Sir, yours faithfully,
Sept. 20th, 1913. J. Barker Smith, L.R.C.P. Lond.

A STANDARD MEAL FOR RADIOGRAPHIC EXAMINATIONS.

To the Editor of The Lancet.

Sir,—In the Section of Electrotherapeutics, at the annual meeting of the British Medical Association recently held at Brighton, the following resolution was passed :—

> That this meeting expresses the opinion that it is advisable that one definite type of standard meal for radiographic examination should be adopted by general consent, and asks the Electrotherapeutic Section of the Royal Society of Medicine to appoint a committee to obtain evidence with a view of suggesting this official standard meal.

This resolution was formally handed to me as President of the section referred to, and I have undertaken to give this matter my personal care and see that it is acted upon. I therefore invite all radiologists and others who are interested in this subject, both here and abroad, to write to me stating, as concisely as possible, the composition, quantity, and consistency of the bismuth or barium meal they use as a general rule, and the reasons why they prefer such a meal.

The sooner this evidence is obtained the better it will be for all concerned, and it will facilitate matters very considerably if the bulk of it is ready to lay before the committee soon after it is appointed, probably during the month of October. As it is intended to give this question an international character, it is hoped that evidence will be given by radiologists in Europe, America, and elsewhere. Provided the communications are sent promptly they will be in time to be fully considered along with the rest. Communications should be sent to me at 66, Harley-street, London, W.

I am, Sir, yours *faithfully*,
Reginald Morton,
President, Section of Electrotherapeutics,
Sept. 24th, 1913. Royal Society of Medicine.

GREAT BRITAIN AND OLYMPIC GAMES.

To the Editor of The Lancet.

Sir,—The opening subscription list published by the Olympic Games Fund scarcely shows symptoms of that enthusiasm which will be necessary if the total of the fund is to be carried to £100,000 or any such sum. We who sympathise with the promoters of the scheme if, as we are inclined to conjecture, they are conscious that it has not as yet exhibited signs of having "caught on" with the British public, or won approval from many whose support would have been of considerable assistance to it, have our sympathy prompted by the knowledge that those responsible for the scheme are earnestly, if too readily, convinced of the benefit likely to accrue to their country from its adoption. The aim they seek to promote appears to be a general improvement in the physical training and physical health of their countrymen in addition to the winning of prizes at the "Olympic Games" promised at Berlin in 1916, and as a result of a widespread effort to qualify athletes for that competition. The fact that the Olympic Games Fund may perhaps not develop at once into a permanent institution upon the scale desired for it by its well-wishers cannot strike medical men as an indication of the decay of physical and moral energy as exhibited hitherto in this country, or as anything in the nature of a national misfortune. From a medical point of view all medical men are in sympathy with reasonable indulgence in sport.

Athletic and field sports alike are traceable to a common origin—the preservation of the human species. The necessity for providing the necessaries of life by securing food taught men to pursue wild birds and beasts successfully and to snare fish with skill, and the preservation of life was again the object aimed at in cultivating the body generally and in training it for personal combat. The long-distance runner and the famous swimmer or jumper of to-day would, no doubt, have been utilised by our distant ancestors as a messenger useful in times of war. Modern sport, as medical men are prepared to commend it, is rightly and wisely indulged in as a recreation after toil, and as a means to maintain and increase bodily vigour. It is by some followed as a substitute for any other occupation of a more serious character to the exclusion of all other pursuits, and as such we do not commend it or admire its devotees. By others it is followed as a profession, and the ranks of these professionals are recruited by fine specimens of our race, many of them with a mental endowment which balances their physical skill. Nevertheless, nobody wishes to see the ranks of professional game-players unduly enlarged, while the cloak of patriotism must not be used to conceal the creation of a class who, without being professional athletes, none the less make athletics the affair of their lives. When Englishmen devoted themselves *con amore* to field sports we developed qualities of pluck, resource, self-control, and good fellowship, so that we were a nation which, whatever its faults, was one of conspicuously healthy bodied and healthy minded men. But many thoughtful people do not approve of turning these sports into a business. Mr. Nowell Smith, the head-master of Sherborne, reminded us, in one of his letters to the *Times*, that we are accustomed to hear schoolmasters blamed for the undue athleticism of our public schools. We are now apparently asked for the good of the nation at large to extend that athleticism, to systematise and to standardise it, not merely in order that a larger number of young athletes may meet in friendly rivalry at home, but in order that they may, by years of training, of elimination, and of selection, outdistance all competitors in a European meeting, and the pursuit of this ultimate end of international competition appears to be essential to the scheme under discussion. But it is the excess of competition in athletics and the proclaiming of success in such competition as the principal aim for which athletic prowess is to be cultivated which many of us condemn.—I am, Sir, yours faithfully,

E. A. A.
Sept. 16th, 1913.

⁂ Apparently the nation is committed to the international contest. We quote Polonius with apologies—"Beware of entrance to a quarrel, but, being in, bear't that th' opposèd may beware of thee." *The first maxim* having been disregarded, an attempt is now being made, wisely or unwisely, to follow the second.—Ed. L.

THE NATIONAL INSURANCE ACT.

THE NATIONAL CONFERENCE OF FRIENDLY SOCIETIES AND THE ACT.

THE National Conference of Friendly Societies opened at the Hearts of Oak Delegate Hall, Euston-road, London, N.W., on Thursday, Sept. 18th, when Councillor A. H. Warren, Independent Order of Oddfellows (Manchester Unity), presided over delegates from all parts of the country and representing over 7,000,000 members.

The proceedings have been fully reported in the *Daily Telegraph*, and we comment upon them in a leading article this week. The presidential address was a dignified setting out of the position of Friendly Societies as character-building organisations, but foreshadowed the debate that followed by the suggestion that malingering and excessive sickness claims were associated with the severance of the old position between the medical profession and the Friendly Societies of employed and employer.

The following resolution was moved by Brother T. Berrie:—

> [illegible] Act.

This was seconded by Brother King, who said, according to the *Daily Telegraph*, that "they got far better service when the societies had the management of the medical benefit. It ought never to have been taken away from the societies. It gave them a command over the doctors. They could say to them that if they did not do their work they would give them the 'sack,' but they could not do that at present, although that was what was required in many cases."

The resolution was later modified by Mr. Berrie in the following way:—

> That action be continued to secure the transference to Approved Societies of the administration of medical benefits under the National Insurance Act where desired.

An amendment was then moved and withdrawn advocating a State Medical Service, and after several modifications another amendment was moved running as follows:—

> That this National Conference is of opinion that a full time salaried medical service is the only solution of the difficulty of providing an adequate medical service.

This amendment was rejected by a large majority, and Mr. Berrie's motion, with the omission of the last words, "where desired," became the unanimous resolution of the Conference.

A PROPOSED SPECIAL COMMISSION.

Sir Charles Macara, President of the Employers' Parliamentary Association and member of the Government Industrial Council, recently suggested in a letter to the press that the questions arising under the National Insurance Act are too numerous and too complex to be dealt with as the exigencies of party politics might suggest, and that a thoroughly representative Special Commission should be appointed to consider the question as a whole. "I claim," he says in his communication to THE LANCET, which is substantially the same as has already appeared in the lay press, "that it is high time the scheme was lifted out of the political cockpit and dealt with as a non-party and national question." The proposal of a Special Commission is virtually a severe criticism of the amending Act. As all our readers know, under the Amending Act the medical position is strengthened in minor ways, but the particular modifications of the measure which we should most desire to see are not included, and while the amendments bring into the sphere of medical benefit some 8000 or more persons they do not propose to remedy the faults in the administration of that benefit. The contention of the Government would probably be that if the amending measure had not made all persons satisfied with all situations arising under the Act, it is at any rate an earnest of their intention to deal with defects as they arise and as their reality can be proved. It is a matter of common knowledge that further amendments and changes in the National Insurance Act will have to take place, and Sir Charles Macara considers that a Special Commission, if properly representative of the interests involved, could fully consider the facts and make regular and comprehensive proposals for the removal of abuses in a manner which Parliamentary methods could not compete with either in rapidity or in directness. The proposal will, of course, be recognised as a repetition, rather late in the day, of what was said so often and so clearly by thoughtful people when the Bill was first introduced into Parliament, that deliberate business-like revision of the measure was required before the Act was placed on the statute book.

MALINGERING: THE POSITION OF APPROVED SOCIETIES.

The official inquiry into malingering will necessarily extend over some time, but some of the Approved Societies are feeling the strain on their resources so acutely that permission has been given to them to employ the services of medical referees. This can be done either directly or through the Local Insurance Committee, at the expense of the society, but the Commissioners advise that all such arrangements should be of a provisional nature. At the National Conference of Friendly Societies the motion urging upon the Government the necessity of appointing full-time medical referees in connexion with all insurance questions was withdrawn.

THE WORKING OF THE ACT IN MANCHESTER.

The Manchester Medical Committee has issued its report, signed by Dr. John D'Ewart, the honorary treasurer, on the work done in Manchester under the National Insurance Act for the quarter ending June 30th. The following are some of the details. The number of patients increased, with fluctuation, from 24,733 in January to the following numbers for the later months respectively: February, 40,788; March, 40,230; April, 40,838; May, 35,929; June, 38,028.

Comment is made on the astounding feature of these figures, which is unquestionably the amount of sickness disclosed by the working of the new Act. "Even," says the report, "when no attention is paid to the thousands of insured persons still consulting doctors not on the list, the fact that every month about one-sixth of the insured population of Manchester require medical attention is by itself sufficient to dispose of the unfair and untrue statements made recently in the House of Commons by Mr. Masterman when he charged the Lancashire doctors—because the sickness rate exceeded his estimate—with a deliberate attempt to smash the Act." The Government was repeatedly warned that the calculation of the incidence of sickness among insured persons was being made upon an unsound basis, and Mr. Masterman's allegation is consequently considered to be unfair.

In the contrast between the panel system and the Manchester scheme the Manchester Medical Committee states that the Manchester scheme was the more equitable, inasmuch as the bulk of the money available went where the bulk of the work was done. This, says the report, has been investigated actuarily, with the result as shown below:—

	February.	March.	April.	Total.
Total number of doctors ...	278 ...	277 ...	257 ...	—
Number of doctors whose credit rates exceed £87 10s. for month ...	48 ...	50 ...	49 ...	—
Collective credit rate of these doctors	£5,898 ...	£6,738 ...	£6,514 ...	£19,032
Collective credit rate of all others	£6,542 ...	£6,576 ...	£6,455 ...	£19,693

In other words, about 50 practitioners working in the congested areas take about half the money. The total amount of the bills rendered from Jan. 15th to March 31st was £34,413 8s., and " [illegible] in the £ was £20,929 [illegible] 2 10s. [illegible] marked tendency for insured persons to increase their demands for non-routine visitation, as evidenced by the steady rise in the relation of ordinary visits to special and night visits, the remedy suggested for which is to insist upon a small fee being sent with the request for such attendance. A strong and interesting report closes as follows: "The work done per patient per month averages about 7s.; the money provided by Mr. Lloyd George averages about 4s. As the number of patients cannot be reduced practitioners are still faced with the alternatives of reducing the work done or definitely accepting the *rôle* of [illegible]thropists by order of the Government.'"

Communications, Letters, &c., have been received from—

A.—Argyle and Bute Asylum, Lochgilphead, Clerk to the; Mr. R. J. Angel, Lond.; Messrs. Allen and Hanburys, Lond.; Mr. R. E. Apperly, Lond.; Mr. R. J. Albery, Lond.; Acetylene Publicity, Lond.; Alpha Advertisers' Agency, Liverpool; Anglo-American Pharmaceutical Co., Croydon.

B.—Dr. G. S. Blandy, St. Albans; Messrs. T. B. Browne, Lond.; Burnley Union, Clerk to the; Messrs. C. Barker and Sons, Lond.; Bristol Royal Infirmary, Secretary of; Bihar and Orissa Government, Patna, Book Depot, Officer in Charge of; Dr. J. L. Bogle, Dursley; Bolingbroke Hospital, Lond., Secretary of; Mr. Cloudesley Brereton, Lond.; Dr. W. H. Bowes, Ivybridge; Dr. W. Cecil Bosanquet, Lond.; Dr. Shepherd Boyd, Harrogate; Miss M. A. Brick, Lond.

C.—Messrs. Cassell and Co., Lond.; Dr. H. P. Cholmeley, Westerham; Casein, Ltd., Lond.; Mrs. H. Cullinan, Sandyford; Clayton Hospital, Wakefield, Secretary of; Dr. F. G. Caley, Lond.; Cumberland County Council, Carlisle, Clerk to the; Charing Cross Hospital Medical College, Lond., Dean of; Dr. Peter Cooper, Lond.; Mr. H. A. Collins, Croydon; Dr. J. Basil Cook, Lond.

D.—Dorland Agency, Lond.; Messrs. W. Dawson and Sons, Lond.; Denver Chemical Manufacturing Co., Lond.; *Daily Mail*, Lond.; Mr. E. Dallimore, Walton-on-Thames; Mr. J. Davis, Lond.; Dr. Vincent Dickinson, Lond.; Mr. S. R. Deane, Lincoln; Dundee Royal Infirmary, Secretary of; Messrs. Down Bros., Lond.

E.—Dr. G. L. Eastes, Lond.; East Sussex Hospital, Hastings, Secretary of; Eastern Dispensary, Lond., Secretary of.

F.—Hon. E. FitzGerald, Beatenberg; Mr G. P. Forrester, Darmstadt; Major H. C. French, R.A.M.C., Osborne; Factories, Chief Inspector of, Lond.

G.—Dr. N. B. Graham. St. Albans; Messrs. Griffin and Sons, Lond.; Dr. Major Greenwood, Lond.; Dr. J. Grossmann, Manchester; Mr. H. H. G. Grattan, Lond.; Dr. A. S. Garrett, Springtown, U.S.A.; Mr. Norman Gray, Lond.; Mr. John Geddes, Winnipeg; Guy's Hospital Medical School, Lond., Dean of; Messrs. A. H. Grantham and Co., Reading.

H.—Dr. B. Harklotz, Pittsburg; Dr. F. de Havilland Hall, Lond.; Mr. A. Holden, Bridport; Dr. Hirsch, Budapest; Mr. T. L. Hill, Independence, U.S.A.; Messrs. Hoskins and Sewell, Birmingham; Mr. John Howell, Cheltenham; Mr. Robert J. Hellier, Sheffield; Dr. C. O. Hawthorne, Lond.; Dr. S. G. Hurtado, Madrid; H.; Dr. E. W. Hope, Liverpool; Mr. C. R. Haines, Godalming; Colonel P. Hehir, I.M.S., Eastbourne; Dr. Oscar Holden, Birmingham.

I.—Insurance Committee for the County of London, Secretary of.

J.—Mr. H. W. Jackson, Lond.; Dr. J. E. L. Johnston, Yaba, South Nigeria; Dr. A. Bassett Jones, Llandrindod Wells; James Murray's Royal Asylum for Lunatics, Perth, Secretary of; Mr. H. A. Jeffery, Bradford; Dr. W. R. S. Jefferiss, Chatham; Dr. Robert T. Jenkins, Trowbridge.

K.—Dr. E. Kidd, Trenton, Canada; Messrs. Kutnow and Co., Lond.; King's College Hospital, Lond., Secretary of; Mr. Keith, Lond.

L.—The Lazilite Co., Lond.; Liverpool Corporation, Clerk to the; Lancashire County Asylum, Winwick, Clerk to the; Liverpool Royal Infirmary, Secretary of; Dr. J. O. G. Ledingham, Lond.; Local Government Board, Lond., Medical Officer to; Local Government Board, Lond., Secretary to.

M.—Dr. J. McIntosh, Lond.; Mr. R. Mosse, Berlin; Manchester Royal Infirmary, Secretary of; Manchester Corporation, Medical Officer to the; Mr. Hugo Marens, Lond.; Dr. Murdoch Mackinnon, Lond.; Messrs. Z. P. Maruya and Co., Tokyo; Messrs. C. Mitchell and Co., Lond.; *The Women's Medical Journal*, Cincinnati, U.S.A.; Dr. Frank Moxon, Lond.; Mr. A. Staines Manders, Lond.; Mr. E. Merck, Lond.; Dr. Reginald Morton, Lond.; Manchester Royal Eye Hospital, Secretary of; Macclesfield General Infirmary, Secretary of; Dr. R. A. Milligan, Northampton.

N.—Mr. H. Needes, Lond.; Nottingham General Hospital, Secretary of; Nemo; North Riding Infirmary, Middlesbrough, Secretary of.

O.—Dr. J. S. Owens, Lond.; Oxford County Asylum, Littlemore, Clerk to the.

P.—Mr. A. J. Pitcairn, Lond.; Messrs. R. Pape, Belvedere; [illegible] tary of.

Q.—Quantock Vale Cider Co., Bridgwater.

R.—Mess [illegible] Lond.; [illegible] Health [illegible] Royal [illegible] Brighton, Secretary of; Registered Nurses' Society, Lond.; [illegible] Lond., Dean of; Royal Society of Medicine, Lond., Secretary of; Royal College of Physicians, Lond., President and Fellows of; Dr. J. Rotgans, Amsterdam; Royal Infirmary, Hull, Secretary of; Royal Halifax Infirmary, Secretary of.

S.—Messrs. W. B. Saunders Co., Lond.; Messrs. Spiers and Pond, Lond.; Dr. Agnes Savill, Lond.; Mr. J. Barker Smith, Lond.; Mr. N. R. Summanwar, Berar, India; South Australia, Registrar-General of, Adelaide; Salop Infirmary, Shrewsbury, Secretary of; Swansea General and Eye Hospital, Secretary of; Scholastic, Clerical, and Medical Association, Lond.; School of Art Wood-Carving, Secretary to the Committee of Management of.

T.—Mr. J. Thin, Edinburgh; Dr. Sydney Duke Turner, Purley;
Dr. G. H. Taylor, Sydne
John C. Thresh, Chelr
Dr. G. S. Thompson, Kim
Mr. M. E. Thomson, B
ham; Dr. John Tatha
Oxted.

U.—University of Leeds,
of Medicine, Dean of;
Ussher, Brackley; Unive
Birmingham, Dean and
of Medicine of.

V.—Victoria, Inspector-Ge
the Insane, Melbourne.

W.—Messrs. J. Wright an
Bristol; Messrs. A.
Lond.; Dr. E. W. Ainley
Oxford; West Riding A
Burley-in-Wharfedale, C
the; West Ham and
General Hospital, Lond.
tary of; Messrs. J. W
and Son, Bradford.

Y.—Dr. G. Pratt Yule, Cup

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. Arnold and Son, Lond.; Ashwood House, Kingswinford, Medical Superintendent of; Ayr District Asylum, Ayr, Clerk to the.

B.—Dr. Mitchell Bruce, Lond.; Dr. A. A. Bisset, Wadsley Bridge; B. J. P. J.; Messrs. Baillière, Tindall, and Cox, Lond.; Messrs. J. Beal and Son, Brighton.

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